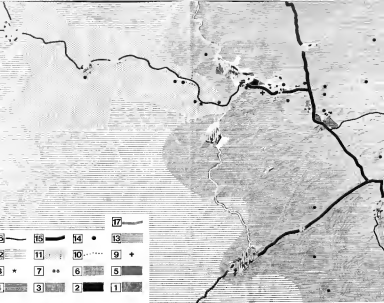


1. Existing residential and ancillary areas
2. Existing industrial areas
3. Shopping Centres
4. Open Space
5. Low-land farming
6. Woodland
7. Roads
8. Railways
9. Burgh boundaries
10. Charlesfield



1. Areas unsuitable for development due to topographical limitations
2. Areas unsuitable for development due to high amenity values
3. Existing built-up areas
4. Land with restricted potential for development due to slopes and woodlands
5. Land with restricted potential for development due to high agricultural fertility
6. Areas served by existing sewage networks
7. Existing treatment plants
8. Tourist routes



	<i>existing population</i>	<i>1st Phase committed</i>	<i>proposed</i>	<i>2nd Phase proposed</i>	
HAWICK—		194	250	1,250	net increase
	16,206	16,650		17,900	TOTAL
GALASHIELS—		1,627	2,875	650	net increase
	12,373	16,875		17,525	TOTAL
SELKIRK—		866	125	—	net increase
	5,634	6,625		—	TOTAL
PEEBLES—		800	—	—	net increase
	5,548	6,348		—	TOTAL
JEDBURGH—		1,355	—	45	net increase
	3,645	5,000		5,045	TOTAL
INNERLEITHEN AND WALKERBURN—		200	—	45	net increase
	3,162	3,362		3,407	TOTAL
MELROSE—		—	—	—	net increase
	2,642	—		—	TOTAL
NEWTOWN ST. BOSWELLS AND ST. BOSWELLS—		—	3,525	6,600	net increase
	2,060	5,585		12,185	TOTAL
EARLSTON—		250	—	—	net increase
	1,200	1,450		—	TOTAL
DENHOLM AND MIDLEM—		—	—	—	net increase
	653	—		—	TOTAL
CLOVENFORDS—		—	—	—	net increase
	140	—		—	TOTAL
TWEEDBANK—		4,400	—	—	net increase
	—	4,640		—	TOTAL
LANDWARD AREAS—		—	—	—	net increase
	20,537	—		—	TOTAL

1. Existing Urban Areas
2. Committed Residential Development
3. Proposed Residential Development, 1st Phase
4. Proposed Residential Development, 2nd Phase
5. Committed Industrial Development
6. Proposed Industrial Development
7. Shopping Centres
8. Administrative Centre
9. District General Hospital

10. Principal Pedestrian Route
11. Country Park
12. Open country—areas of limited access
13. Arable agriculture—areas of strictly limited access
14. Sites of Interest
15. Major routes
16. Other important routes
17. Tourist routes

## Terms of Reference

1. The Terms of Reference, issued by the Scottish Development Department in April 1966, read as follows:

2. "Mr. William Ross, M.P., Secretary of State for Scotland, has asked the University of Edinburgh, through its Faculty of Social Sciences (of which Professor J. Wreford Watson is the Dean), to undertake this study. Professor P. Johnson-Marshall, who holds the Chair of Urban Design and Regional Planning, will be the Consultant Director. Professor Wolfe will be the Economic Consultant.

3. The physical planning and design aspects of the study will be undertaken by the University's Planning Research Unit, and the varied resources of the Faculty of Social Sciences, including those of the Economics, Geography and Sociology Departments, will be brought to bear so that the demographic, economic and industrial aspects will be taken fully into account.

4. As stated in the White Paper, the Consultants have been asked to report within eighteen months.

5. In commissioning this study, the Secretary of State has in mind that it would divide itself into three phases, each of which could be separately reported upon when completed. These phases would produce:

*Phase 1.* Advice on the immediate extension of Galashiels south of the Tweed towards Darnick and on the general siting of the 1,000 houses which it is proposed that the Scottish Special Housing Association should build by the end of 1970.

*Phase 2.* Advice on the programme for the expansion of the population in the Area by the attraction of an additional 25,000 people by 1980. It is envisaged that, associated with this

population increase, there should be a programme of industrial and commercial development.

*Phase 3.* Advice (in very broad terms) on the long-term expansion of the Area, which may expect to be self-generating after the 1980s.

6. In preparing the blueprint for development and the location of major facilities such as a shopping centre in Phase 2, the Consultants are expected to take into account:

- (a) The attractions of the Tweed as an amenity feature and as a tourist and recreational centre.
- (b) The redevelopment of existing communities.
- (c) The development of communications arising from the growth of traffic both public and private.
- (d) The need to achieve exceptionally high quality planning, design and execution, both to justify developing the very attractive stretch of valley between Galashiels and St. Boswells, and to establish new environmental standards for urban Scotland.

7. In making their study, the Consultants will not devote their attention exclusively to the Galashiels/Melrose/St. Boswells area. The idea behind the plan for a population build-up in this area is that it should spread its benefits throughout the Central Borders as a whole. While therefore the production of a specific plan for the Galashiels area as defined in the White Paper will be the Consultants' principal concern, they are invited to feel free to make any comments they may consider appropriate on how best to associate the other towns in the Central Borders with the new focal point at Galashiels and the extent to which these other towns could or should be expanded.

8. The Consultants will be expected to submit an interim report on Phase 1 as soon as possible; and a report on Phase 2 within 18 months of commissioning."



## Acknowledgements

9. In presenting this Study, the Consultants would like to express their great appreciation of the generous spirit of co-operation shown by a large number of public and private bodies and individuals in the preparation of the Survey and Plan. In particular, they would like to thank the administrative and technical officials of the Scottish Development Department; the Members of Parliament, County Councils and Burgh Councils of the Study Area, and the other Government Departments, Boards, and private agencies who contributed in the closest and most helpful way at all times.

10. A large number of Borderers also helped in many ways, and the Border Forum especially acted as a useful catalyst of informal opinion.

11. The Consultant Director would like to express his personal gratitude to all members of the Planning Research Unit in which the Study was prepared.

Drawings for maps and diagrams were prepared by A. D. Bell, D.A.(Dundee), A.R.I.B.A., A.R.I.A.S. and the Planning Research Unit, sketches by G. Melnicove, B.Arch.(Illinois).

Special mention should be made of the help received from studies in Tourism by students of the Geography Department of the University of Edinburgh, under the direction of Professor Coppock.

## Previous Reports

12. The first major Survey and Plan was prepared by Sir Frank C. Mears, 'A Regional Survey and Plan for Central and South-East Scotland', which studied the Borders in its larger geographical setting. The four Counties of the Tweed Basin were divided into three 'sub-regions': (1) the upper Tweed including Peebles, Innerleithen and Walkerburn, (2) the middle Tweed including Galashiels, Melrose, St. Boswells, Jedburgh and Hawick, (3) the lower Tweed including Berwick. The upper and middle 'sub-regions' correspond to the present Survey Area. Within these two 'sub-regions' it was proposed to have urban centres, to set up industry, improve communications and agriculture, and to provide more facilities for leisure.

13. A number of smaller works prepared as dissertations by former students in the Geography Department of the University of Edinburgh have provided valuable information on services, service hinterlands, industries and recreation facilities in some of the towns. Of particular influence has been the report prepared by Professor Tom Burns, 'The Scottish Border Counties' for the Scottish Council. This was a

survey of depopulation—its social and economic consequences and proposals for further developments.

14. The White Paper, 'The Scottish Economy 1965 to 1970; A Plan for Expansion', which proposed the Study also set out its reasons for the proposal. It stated that the Area was one of the most attractive parts of Britain but that its appearance concealed a situation of imbalance and decline. The principal concern has been regarding depopulation. Many rural areas in the western world exhibit depopulation which is a product of the increasing efficiency and falling manpower requirements of agriculture and increasing industrialisation and urbanisation. The physical characteristic of the Borders is that the depopulation is affecting the towns.

15. Industry is dominated by the textile firms. Other manufacturing and service industry is under represented. Unemployment is slight and there is an acute shortage of labour. Further depopulation will seriously affect the existing industries which could force closure or removal which would further accelerate the process.



## Preamble

16. The Central Borders represents a unique challenge to Scotland, to the Borderers themselves, and to the planners. From the commencement of the project this was made abundantly clear. The Secretary of State's own concern at the serious nature of the problem was expressed clearly in 'The Scottish Economy 1965-70: A Plan for Expansion', and was followed up with a sense of urgency, both in the early commissioning of the present Plan, with a very short time programme indeed for such a complex study, and in the rapid action made towards the implementation of an immediate stage of development in the Tweedbank (Darnick) area near Galashiels. During the preparation of the Plan, the very lively interest of the Border community in the Study was manifest, first over the Tweedbank case, but also at a number of well-attended public meetings which the planning team was invited to attend, and, on occasion, address. As the normal processes of survey and analysis proceeded, it was clear, too, that the Area presented a number of unusual aspects which might well give the possibility of a test case of settlement planning for the British Isles.

17. The Study Area (see Map No. 1) consists of the upper part of the Tweed valley, the latter corresponding in a remarkable fashion to Patrick Geddes' original concept of the Valley Region. It is also geographically a part of the extensive range of hills stretching right across the island, that have for centuries acted as a barrier to communications, intercourse, and development, between north and south. Potentially, however, a community in this well-favoured valley could act as a bridge between the large population centres to the north in the Central Lowlands of Scotland, and to the south in England's north-east. In this sense it is unfortunate that this Plan was confined to only one part of the Tweed valley, although the reasons, in terms of its priority nature, are well understood.

18. The proposals for the Central Borders as set out in the Report are clear, and follow logically from the examination of the existing

factors of the problem. They were limited and guided by the terms of reference: namely, to prepare a plan for development up to 1980, with an increase of population of approximately 25,000 people. In considering them it is essential to have an awareness of the difficult nature of the problem, and we would address this particularly to the Borderers themselves, and this includes not only the predominantly adult population that at present inhabits the Area, but also the large numbers of younger people who have left the Area over the years, to seek elsewhere what they cannot achieve at home.<sup>†</sup>

19. In a period of rapidly decreasing time-distance, and of rapidly increasing mobility in relation to work places and working population, at a time when increasing educational standards and affluence are rapidly bringing about a demand for higher standards of space and environmental quality, the Central Borders presents superb and easily achievable opportunities, albeit on a limited scale, for tomorrow's living. The proposals endeavour to present a way in which the Area can develop from the present unsatisfactory situation to one where, by 1980, a physical environment will have been created of such quantity and quality that the inhabitants will no longer feel the need for migration. The proposals are based on an endeavour to make the best of all the existing assets and possibilities of town and country, coupled with a new concept of a Regional City.

20. In detail, the first task has been to ensure that the superb existing landscape will be preserved, together with the economic well-being of agriculture and forestry, and to capitalise on this asset in the form of encouraging tourist and recreation potentialities. Second, the needs of each urban settlement have been studied, and appropriate possibilities for improvement and development have been recommended as an early priority.

<sup>†</sup>Cited, 1964, H.M.S.O.

<sup>†</sup>See White Paper—Table X, Migration Statistics.

Scott's View





21. The Study proved that the majority of existing towns had grown up in their locations for reasons which were important at the time, but are now no longer critical, and that their present locations present serious difficulties for large-scale expansion. Taking into account economic factors, conditions of special landscape value, such as the immediate vicinity of the River Tweed, land of high agricultural value, the wind-swept upper slopes, and other considerations, the one area which clearly presented the best opportunity for extensive urban development was at St. Boswells. It is in this area that the main developments of the second phase of the Plan are proposed, for it is here that land is most appropriately available for industrial, residential and other urban purposes, for it is not only reasonably level, but is also at a nodal point of communications.

22. It should be stressed that the intention is not to propose a large solid mass of urban development, which could so easily disturb the whole character of the Area, and about the possibility of which so many feel justifiable concern. It is essential that all the Border towns, proud as they have been of their ancient traditions and individual character, must in the future regard themselves as part of the larger concept of a Regional City; this, although not dominating the valley scene, as in the case of a normal city, nevertheless provides throughout its extent all the facilities and attractions which tomorrow's citizens will expect to have readily available. A typical instance is the existence of an ice rink at Kelso; to build such a facility in every Border town obviously would be impractical, but so long as the Borderers can get to it within approximately the same span of time that it takes a person to travel across a solid city, then they can feel assured that they have its availability. In the same way, industries, offices, theatres, museums, and other facilities of the urban dweller can all be provided, with the additional attraction that the commuting journey is enhanced by a most attractive landscape.

23. The well-known planning term 'Garden City' here comes to mind as an indication of the idea that the new urban structure proposed will be like a city which has had its agglomeration of almost unidentifiable communities 'exploded' to allow some of the loveliest landscape in Britain to penetrate and surround them. The aim is thus to keep and enhance one of the most desirable of all Border characteristics, that of close accessibility to all kinds of open space. In addition to the normal range of city and community facilities, the Area clearly provides some astonishingly beautiful rural riverside walks, excellent fishing, superb and easily accessible hills, and viewpoints for the enjoyment of well-composed landscapes, both of panoramic vistas and of close up compositions. This landscape or countryside does not, however, exist solely for the recreational benefit of the town dwellers and the tourists. It is an important productive resource in terms of agriculture, and outline evaluation studies have therefore been undertaken in terms of capability for various agricultural purposes.

24. Considerable attention has been given to the problem of accessibility so that the maximum use can be made of rural areas without impairing their essential function. In particular, a Country Park is proposed in that part of the Tweed valley between Peebles and the Tweed's confluence with the Ettrick River. The valley is considered to offer exceptionally good opportunities for providing a large stretch of water for the livelier and more strenuous sports, such as sailing, motor boating and water skiing.

25. One implication of the idea of the Regional City is that communications will be of an order adequately to provide quick, easy and safe intercommunication between all the existing and new settlements, and also into and out of the Area, across the hills which surround it. Because of the relatively low population no dramatic and space-consuming expressways are proposed, and indeed the existing road network is at the present time of reasonable quality in relation to the number of vehicles using it. It has, however, a number of defects, notably the lack of good bridges across the Tweed, inadequate road junctions, and insufficient car parking facilities in the towns, and provision is made on the basis of improvements to the existing system rather than the creation of a radically new network. In the longer term it is considered feasible that roads of higher capacity could be provided without undue damage to the landscape, so long as they are carefully and imaginatively designed.

26. Finally, the best of plans can go agley on implementation. It is vital that the broad recommendations in this Plan are followed up by good design in detail for all development both in town and country. Only the highest standards of siting and designing of all kinds of buildings, of roads and bridges, of lamp posts, road signs, railings and walls, coupled with a sharp eye for urban tidiness, for silhouette, for qualities of materials, and for sensitive integration of old and new, would be acceptable. In sum, there is a need for awareness, for the acceptance of good design in the public interest, and a public willingness to face its implications over a wide range of rural and urban developments. It is essential that the proposals in the Plan are accepted by the Border community as a whole, and that the follow-up of the Government's intentions, so well expressed already by its willingness to undertake and encourage immediate development, is continued and sustained over a considerable period. Only then will the Borders have that part to play in the nation-building process which the character of the people and the quality of the environment make so exciting a possibility.

### A Note on Planning Process

27. The commission to undertake the Study was set out in three stages as stated in the Terms of Reference. The first stage was requested as soon as possible, the second in eighteen months, while for the third no time limit was given. In May 1966 we reported to the Secretary of State that we considered the Tweedbank proposal, as subsequently embodied in

Amendment No. 7 of the Roxburgh County Development Plan, to be a sound beginning to the development programme, and we took the view that a high standard of design was required. The scheme offered no impediments to any of the alternative patterns of distribution that seemed to us to be open for the major programme, and in fact afforded a number of features working to the advantage of most of them, especially for the one finally proposed in the recommendations. Throughout the negotiations the urgency was stressed of preparing the Report in the shortest possible time. At the same time it was necessary to use the normal procedure and techniques used in the preparation of such a complex and large-scale study. It was essential to collaborate closely with colleagues in the University Departments of Economics and Geography, and to enlist the services of specialist Consultants for Shopping Studies and Drainage Services. At the commencement the Government set up a new Borders Consultative Group, meetings of which were always attended by members of the planning team. Also set up for the Study by the Government were the Borders Executive Committee, and the Borders Officials Committee. In addition, there were two Technical Committees, one for Services and one for Roads. During the study period it was considered necessary to organise an Origin and Destination Survey for traffic purposes, and this additional task had to fit in to an already tight schedule.

28. To meet all these commitments and to ensure the completion of the Plan within the specified time, a careful work and process study was made, and two work study diagrams were circulated to all concerned. These are printed in Appendix 2, as they proved to be extremely useful.

29. The traffic studies benefited greatly by the co-operation of the University Department of

Computer Science and the Usher Institute, as extensive use was made of computer techniques. The services of Border Television were also enlisted in regard to inviting public participation in surveys, while over seven hundred feet of colour film was taken throughout the Study Area and used for rapid reference on physical characteristics.

30. The Threshold Theory was applied in the Study, whereby an analysis was made of growth limitations of a physical, technological and structural nature. Efficiency indices were prepared, calculated, and compared for the guidance of development programmes, and in the process of making the major decisions in the Plan. Before the latter were determined, alternative model development studies were prepared and tested.

31. For the first time, too, the Macaulay Institute's Soil Survey classification was used for land capability assessments, and the proposals for land use in the countryside foreshadow the recommendations of the Countryside (Scotland) Bill, now before Parliament.

32. Other techniques of interest used were methods of Assessment of Residential Environment and for Townscape Analysis. In the first a scheme was devised of testing the standard of living conditions in each town against a set of optimum standards for new development. In the second, an attempt was made to analyse townscape value and character, problems of pedestrian and vehicular movement, and visual or physical limitations to expansion or breaks in development continuity.

33. Many of these methods and techniques, some of which have been used for the first time in the Central Borders Study, are the subject of Research Studies which are being, or will be undertaken in the Planning Research Unit.

# Summary

## Objectives

34. The recommendations were designed to meet the following general development objectives:

- (1) The individual vitality of the towns should be exploited so that their assets and community facilities are available to the expanded population.
- (2) Approved Local Authority proposals for housing and other development should be implemented and further expansion should be guided to those areas where it is economically desirable and socially beneficial.
- (3) The high scenic value of the landscape should be preserved.
- (4) The distribution of the 25,000 population must do more than continue the present urban pattern, it should establish conditions that will encourage self-sustaining growth after 1980.
- (5) The phasing of the proposals should allow the opportunity to revise and reassess the urban strategy at the end of each phase.

## Studies

35. On the basis of studies of urban growth potential, three principal variations for the distribution of a 25,000 population were investigated (see page 20).

- (1) Expansion of one or more existing towns.
- (2) Establishment of a major new community.
- (3) Combination of (1) and (2).

36. The analysis revealed the following important implications:

- (1) Although the 25,000 additional population could be accommodated within the existing towns, further substantial growth would be inhibited because of physical limitations.
- (2) Large industrial sites are not available close to most of the existing towns.
- (3) The A68 trunk road is more easily improved both from the physical and the financial point of view than the A7 trunk road.
- (4) A major new community could not be established by 1980, or soon thereafter and therefore existing commercial centres must provide for the additional population.
- (5) Difficulties concerning the supply of water and drainage for a major new community would increase with the distance from the River Tweed.

## Recommendations

37. It is therefore recommended that the following proposals are carried out. The period of implementation should be divided into two phases: the first phase would be up to 1976, and the second from 1976 to 1980 (see page 26).

- (1) All development should aim towards the concept of a regional community, with facilities and amenities comparable with those of a city rather than a number of isolated settlements (see page 5).
- (2) The present Development Plan proposals for the expansion of the existing towns by approximately 5,000 persons should be implemented (see page 26).
- (3) The proposed development at Tweedbank for approximately 4,000 persons should be implemented (see page 26).
- (4) Within the capacity of their existing water and drainage services approximately 6,000 persons should be accommodated in the towns (see page 26).
- (5) There should be a major expansion of St. Boswells by 10,000 persons (see page 27) for the following reasons:
  - (a) It is in a position easily capable of long-term expansion, with the largest potential.
  - (b) There are suitable level sites for industrial development.
  - (c) There is good access to all existing centres of population.
  - (d) It has good access to the best national route, the A68 trunk road.
  - (e) It is close to Galashiels, the main focus of population.
  - (f) Development of public utility services is economically justified.
  - (g) It is one of the least expensive areas to develop.
- (6) Industrial estates should be established at:
  - (a) St. Boswells
  - (b) Tweedbank
  - (c) Hawickand the small existing sites in the towns retained and developed (see page 27).
- (7) Galashiels should be the major commercial centre (see page 31).
- (8) The realigned A6091 road, linking the A7 to the A68 trunk road, with the bridge at Galafoot, should be constructed as soon as possible (see page 9).

- (9) Major improvements should be concentrated on the A68 trunk road and the A698 road between the A68 and Hawick (see pages 26, 69 and 70).
- (10) Other improvements should be made to:
- (a) the A72 trunk road from Galashiels to Glasgow
  - (b) the A703 road from Peebles to Edinburgh
  - (c) the A7 trunk road from Hawick to Carlisle
  - (d) the A699 road from St. Boswells to Kelso (see pages 26 and 70).
- (11) The A7 road from Hawick to Edinburgh should be treated mainly as a tourist route (see pages 26 and 70).
- (12) The new district general hospital should be sited between Melrose and Galashiels (see page 31).
- (13) Well equipped youth clubs should be established in the towns (see page 81).
- (14) Melrose should be developed as a cultural centre (see page 32).
- (15) A Country Park should be established between Peebles and Galashiels, and the possibilities should be examined to create stretches of water for the concentration of recreation, including water sports (see page 32).
- (16) A pedestrian system should be established throughout the Area linking up with national routes, such as the Pennine Way, and places of local and national interest (see page 32).
- (17) Certain historic sites such as Iron Age settlements and Roman Camps should be reconstructed and displayed for educational and tourist interest (see page 31).
- (18) Sites should be selected for the development of cabins for holiday visitors (see page 31). Sites for tents and caravans, which should be planted with trees now, should be reserved for future development (see page 33).
- (19) An eighteen hole golf course of good standard should be established in a central location (see page 32).
- (20) A wild life reserve, with special viewing facilities, should be established in the Country Park (see page 32).
- (21) A positive approach should be taken to the preservation of the landscape, including the planting of mature trees. In this connection consideration should be given to the establishment of a nursery to ensure a supply of large trees (see page 44).

Melrose Abbey



# Section I: Opportunities and Proposals

## INTRODUCTION

38. The Tweed valley with the dales formed by its tributaries, contained by the Cheviot, the Moorfoot and the Lammermuir Hills, was historically part of a buffer zone between the independent states of England and Scotland. The two western sections of this area, the valleys of the Upper Tweed and the Middle Tweed, some four hundred square miles, have been taken as the area of the Central Borders Study (see Map No. 1). The valley of the Upper Tweed runs through the County of Peeblesshire which consists mainly of mountain or heathland, but towards the centre of the Middle Tweed in the Counties of Roxburghshire and Selkirkshire the uplands give way to more easily cultivated soils, dominated by the landmarks of the Eildon Hills.

39. In spite of the popular image of the Borders as an area of peaceful hills and well-wooded valleys, more than three-quarters of the population of the Central Borders live in industrial urban areas—the woollen and knitwear towns sited on the River Tweed or its tributaries (see Map No. 2). Although of an industrial character the towns are small, the largest being Hawick (population 16,200), Galashiels (population 12,300), Selkirk (population 5,600), Peebles (population 5,500), Jedburgh (population 3,600), and Innerleithen (population 2,300), and they are justly famous for their woollens and knitwear. Melrose is an exception (population 2,600) in that it has no industry but is a notable tourist centre. In addition to these Burghs there are a number of smaller communities. The total population of the Study Area has been taken as 73,800 people approximately who live within a fifteen mile radius of Galashiels.

40. Hawick and Galashiels vie with one another as service centres for the whole Area and the lack of a single regional focus has contributed to a local separateness and rivalry between the towns. This sturdy independence is expressed in the annual Common Riding ceremonies held by each Burgh.

41. Two trunk roads, the A7 from Edinburgh to Carlisle, and the A68 from Edinburgh to Newcastle, cross the Area, whilst the 'Waverley' rail route from Edinburgh to Carlisle provides freight and passenger transport and offers a sleeper service to London from the principal towns. The communications heart of the Area is at St. Boswells where the 'Waverley' line crosses the A68 trunk road. It is only forty miles from Edinburgh, sixty from Carlisle, sixty-five from Newcastle, and seventy-five from Glasgow.

## Landscape

42. It is the variety, richness and contrasts of the landscape which inspire its devotees with enthusiasm. The evidence of archaeologists and historians recall the successive generations of indigenous and migrant populations which since the Stone Age have enjoyed the Area's beneficial combinations of climate, relief, fauna and flora. This is not to say that the various groups have always enjoyed the same features, for the landscape has been in a continuous process of evolution since the first pastoral people established their flocks before the Roman conquest; or even the same satisfactions, since the culture of stock and crops did not elicit the same responses as those of our contemporary civilisation. Each group of inhabitants or visitors, whilst exacting its tributes, has also left them: Iron Age forts, Roman roads and camps, mediæval monasteries, the eighteenth century agrarian and aesthetic improvements, the Industrial Age factories and railways.

43. It is perhaps the heterogeneity of the spatial, historical and social continua of the Area seen as a microcosm which excites the imagination: from bleak hill top to rich sheltered dales, from prehistoric remains to post-Beeching railways, from noble ancestral houses to humble cottages. Scott's View on Bemersyde Hill perhaps illustrates the theory of association. From this vantage point one can simultaneously savour the subtle contours between earth, sky and water, between the bleak steep Eildon slopes and the placid well-wooded Tweed valley, between the order imposed by Man on the landscape, and the random patterns of light and shade, form and texture, produced by nature. These, and many other qualities and associations, give the Area those unique qualities which place it amongst the world's fine landscapes.

44. The changes in today's countryside, as a result of mechanical, chemical and systematic developments in agriculture and silviculture, may be only a prelude to further development. While these technological transformations are occurring on the one hand, on the other changes in social habits are taking place as more people turn to outdoor recreation for leisure. If the countryside is seen only as a source of food or wood, functional changes may be wholly desirable, but if it is also regarded as a necessary complement to urban living, it becomes very relevant to the broader context of planning. This attitude was accepted by the promoters of the proposed Countryside (Scotland) Bill, and will undoubtedly have a profound effect on rural

land use, by preparing the way for an amicable and equitable arrangement between private and public interests on the uses to which the countryside should be put.

45. The desire for access to the countryside should not be regarded simply as an excuse to take the car for a run, or to indulge in some apparently frivolous form of behaviour like lying in the sun. It may well be a biological necessity for some people, in order to counteract the stresses and strains of town life, and may also be an antidote to the sensual and intellectual impoverishment of their living and working conditions. From such assumptions, the tide of people at weekends and holidays, seeking fresh air, water and greenery, may be seen and understood more sympathetically by those whom they unfortunately affect, provoke and disturb.

46. Any mutual enquiry between countryside planners and users would therefore include discussion on the following points:

How should the countryside be evaluated for present and future use;

Where should the public be allowed and encouraged to go;

What arrangements would be made for initial development, maintenance, compensation, etc.

These questions are discussed in Section II.

## The Towns

47. As described in the supporting studies of the towns, specific areas of urban and landscape quality can be defined. Generally speaking, the old 'cores' of the towns (in most cases comprising the mediaeval street pattern) are the most attractive areas, containing buildings of architectural quality and interesting spaces of pleasing scale. The areas of post first-war development are generally the least attractive, due mainly to insensitive and unimaginative design. In order that any future planned expansion will not repeat some of the errors made hitherto, the townscape elements and characteristics of each town were investigated.

48. All the towns have a character which is common to themselves but distinct from that of towns in other regions in Britain. This is largely due to the nature of the Area which has led to the development of each town as a self-sufficient unit; the beautiful landscape which surrounds it, and in many cases penetrates the towns; the almost exclusive use of traditional building materials and pleasant architectural quality in the older parts of the town; and the small scale of most of the towns.

49. Most of the town centres contain considerable areas which are obsolescent or under-used, usually to the rear of shops and offices because the residential use has declined. These opportunities could be exploited to improve accessibility and amenity; and perhaps facilitate pedestrian and vehicular separation as proposed in Roxburgh County Reports for Jedburgh and Melrose.

50. Attempts have also been made to define the restrictions or townscape 'barriers' to development of the towns, and which might be physical such as rivers and railways, or visual such as ridge lines and tree belts. The principal towns lie in steep river valleys and have therefore developed in a linear fashion. However, none of the barriers defined presented any strong reason to restrict expansion except in Selkirk.

51. Any growth of the towns will probably necessitate certain changes in the town centres but these should pay regard to the town's special qualities if they are to be successful. The high architectural quality of some of the streets and spaces warrants their preservation, and this will require adaptation of the traditional form to modern needs. Serious pedestrian and vehicular conflict is rare, but traffic management schemes could improve shopping conditions and alleviate dangerous junctions.

52. New development should be carefully designed to respect the scale and character of the existing buildings and should employ sympathetic building materials. Views out of the town to the hills should be exploited and ridge-lines should be kept free from development.

## Residential Environment

53. The main impact which any town must have on its inhabitants is the standard of living conditions it can offer. Studies were therefore undertaken to assess the environmental quality of the residential districts in the towns. The study applied mainly to groups of dwellings, and the factors taken into account included the type of road serving the dwellings, the form of layout, parking or garage provision, surrounding land use and outlook, open space provision, and visual quality.

54. Taking a broad view of the Area, the topography of many of the town sites has a strong influence on the form of the town, and in particular on the relationship of residential areas to town centres. It rarely however influences the actual layout except in small areas of north Galashiels and south-west Selkirk. Development tends to be scattered, though some housing areas are fairly large. Older dwellings are generally flatted. Most new developments have been built by the local authorities, mainly of two storey houses, although in Galashiels there are several four and five storey blocks of flats in one large housing layout. Generally, neither schemes nor designs of the dwellings are spatially or visually attractive. The overall impression of most housing areas (old and new) is one of drabness with inadequate planting. Although many areas have excellent views out of the towns towards well-wooded slopes, these are rarely exploited. Few areas are affected by any adjacent noxious land uses (one exception being the abbatoir at Galashiels). Most larger areas of even the lower cost housing have some small proportion of garages available, but usually of low quality and sited on



Hawick High Street



a corner of derelict land. Generally there is little traffic nuisance in residential areas except in some cases immediately adjoining the A7 and A66 trunk roads.

55. Within the towns relatively few really poor areas exist, and these are usually the older areas with low standards of space about buildings. Hawick has the most, and Peebles, Melrose, Innerleithen, and St. Boswells have none. Large parts of Melrose and Jedburgh will probably be designated as Comprehensive Development Areas, as outlined in the Reports by Roxburgh County.

56. In all towns there are some areas with only a fair environment, mostly consisting of older dwellings opening directly on to pavements in narrow streets. The largest areas are to be found in Galashiels. Traffic nuisance is worst in parts of Jedburgh and Galashiels. In some older areas housing is very much dominated by large mills and industry, although noxious influence from these is only slight.

57. The majority of residential areas have adequate environments, though improvements could often be made by planting and landscaping, provision of more and better located play-spaces, and parking facilities. Generally road provision is over-generous as the result of rather rigid frontage layouts.

58. A considerable number of areas of good environment are to be found in most towns, but these tend to be small in size. Peebles has the most. Generally these include larger houses in spacious layouts where trees have been retained and where dwellings are grouped around cul-de-sac allowing some control over vehicular access.

59. There is only one example of the very best environment in the Area, in Church Square, Galashiels. It has conscious urban form, and embodies to some degree at least all of the optimum environmental requirements. The design is an attractive three storey flatted block surrounding three sides of a pedestrian square in the oldest part of the town. However, parking provision could be expanded. Nowhere is there an example of a complete housing layout designed with comprehensive pedestrian vehicular separation.

60. Where residential areas are found lacking in some aspects of environmental quality or control, it is possible to make proposals for long or short term improvement or redevelopment based on the probable life of the dwellings weighted against the expenditure required. Many areas are suitable for improvement simply by planting trees, providing extra parking provision, reorganisation of traffic circulation, etc., but in all really poor areas and some adjacent areas where dwellings have a short life span redevelopment is desirable. The largest area of this type is in Galashiels Scott Street area. Once these different categories of environment have been defined decisions may be more easily taken on the possibility or desirability of expansion, both within and adjacent to existing residential areas.

## DEVELOPMENT POTENTIAL

### Urban Threshold Analysis\*

61. The Area has been analysed to discover its potential for development. Lines of limitations, or 'thresholds', whether caused by physical, technological or amenity factors, have been plotted. Overcoming these limitations requires additional capital expenditure or, as in the case of amenity, rides against the main development objectives. The analysis of these limitations for any of the towns revealed areas suitable for urban expansion and indicated the proper sequence in which they should be developed. This analytical technique has been termed the Threshold Analysis. The results of the Analysis were used to provide a basis for the distribution of population both for the period of growth up to 1980, and for longer term possibilities.

62. The analysis covers two main aspects: (1) physical and (2) financial.

#### 1. Physical Aspects

The limitations or thresholds, faced in the expansion of the towns, may be of a physical or quantitative character. To determine them the following aspects were investigated:

*Natural features* - exposure levels, gradient and orientation of slopes, land liable to flooding, sand and gravel deposits, main woodland and fertile soils.

*Services* - extent of areas served by existing public utility networks, capacity of existing treatment plants and water supply, together with possibilities for their future expansion without the implementation of new works.

*Roads* - capacity of existing roads in relation to traffic flows and degree of accessibility afforded by existing road networks.

*Build-up areas* - technical conditions of the existing urban structure to reveal the needs and possibilities for urban renewal schemes.

*Amenity assets* - quality of the landscape and scenic values which might impose severe restrictions for future urban development.

63. The results of this analysis produced two main development thresholds.

(i) *A Regional Threshold* - encompassed areas affected by negative physical factors and therefore highly undesirable for any kind of urban development. These areas were excluded from further analysis. This threshold line also included areas where urban development would considerably affect and spoil the natural beauty of the landscape.

(ii) *Ultimate Town Thresholds* - indicated how far existing towns may be expended without facing major barriers, the overstepping of which would be highly undesirable in the light of the costs and/or other difficulties involved. It should be noted that all the main towns have fairly well-determined Ultimate Threshold Lines and therefore limited urban growth potential. This is mainly due to the natural characteristics of the Area.

\*The Threshold Analysis was evolved by Professor R. Mellor in Finland (1960).

64. Although both the Regional Threshold and the Ultimate Town Thresholds determined the main guide lines for the possible population distribution, it was necessary to go into more detailed analysis of the respective towns and other limitations relevant to their expansion. Within the Ultimate Town Thresholds there occurred two further categories: 'network thresholds' which delimited all areas served by existing sewerage systems; and 'quantitative thresholds' which showed the successive limitations resulting firstly from existing capacity of treatment plants and water resources, and secondly from the possibilities for their expansion. Thus a 'main quantitative threshold' is reached when a maximum number of newcomers can be accommodated within any of the analysed towns without the necessity of implementing new works which entails high capital investment costs. Results showing these thresholds are given in Map No. 3, Table No. 1 and Diagram No. 1.

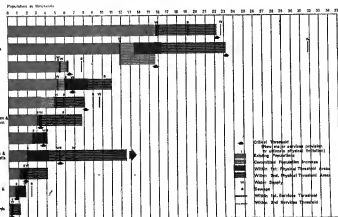
65. Having defined the development thresholds, the total urban growth potential was calculated on the basis of an average gross density (excluding industry) of twenty-five persons per acre. The figure obtained exceeded 30,000 new inhabitants, thus revealing the theoretical feasibility of accommodating the expected increase up to 1980 and even beyond by only expanding the existing towns. In many cases, however, such expansion would require the implementation either of new treatment plants or new water resources or both, when the 'main quantitative threshold' comes before the Ultimate Threshold. Building new works involves high capital investment costs which necessitate careful economic investigation to

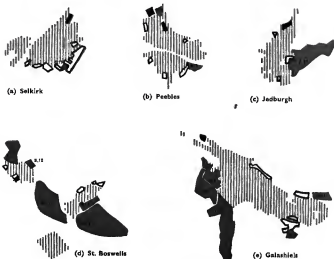
justify such decisions in the light of possible benefits and frozen capital investment costs. Information deriving from the Analysis did not seem to provide sufficient backing for this since in many cases the urban growth potential of the towns concerned would not allow for substantial growth after new works had been built, thus making their implementation questionable. There is, however, one important exception, that of St. Boswells, where further expansion is almost unlimited, and where implementation of new public utility works would be justified.

## 2. Financial Aspects

66. Definition of physical limitations and, therefore, growth possibilities would not alone be enough to provide a basis for alternative patterns of population distribution. The second part of the analysis provides a simple economic assessment. A further breakdown of land defined a number of homogeneous areas limited either by one of the main thresholds previously defined, or by others of a purely local character. These pointed out clearly where urban expansion would face the need for spending additional capital above the norm to open new areas for building purposes. All these areas were plotted on Maps No. 4(a)-(f), numbered, and all main additional costs including those of a quantitative nature were investigated. They concerned: acquisition of land, building on slopes 1:6 to 1:12 and 1:12 to 1:20, laying new trunk sewers, building new access roads, expanding the capacity of existing treatment plants and water supply, implementing new treatment plants, providing new water resources.

DIAGRAM 1. URBAN DEVELOPMENT THRESHOLDS





67. Finally, the total additional costs for each of the areas involved were calculated on a 'per capita' basis and are shown on Table No. 2. This information provided one of the important criteria for the formulation of the population distribution.

68. Diagram No. 2 was also prepared to show the relationship between the amount of additional capital expenditure necessary to allocate the total population according to the ultimate growth potential in any town. In such a way certain aspects of financial effectiveness of urban expansion were revealed as another factor influencing proposals.

#### Conclusions

69. Implications from the analysis for the optimum distribution of population are as follows:

The urban development should preferably be phased in stages following the limitations imposed by 'network', 'quantitative' and 'ultimate' thresholds. The first stage of development should concentrate on 'exploitation' of easily useable areas located within 'network' thresholds in all towns and within spare capacity of existing treatment plants and water supply.

70. The main quantitative thresholds (necessitating new works) should not be crossed in any of the towns with the exception of St. Boswells which is the only place where the substantial expenditure necessary for implementation of new public utility networks is justified from the economic viewpoint. The network threshold in other towns can be crossed but preferably in the later stages of development.

71. The cheapest towns to expand were Earlieston, Jedburgh and St. Boswells. However, superficial analysis excluded Earlieston as a possible 'growth point' for the Area because of its size and location. This was less valid in the case of Jedburgh but, since the location of industry is another vital factor, the position of Jedburgh in relation to the major towns was unfavourable. Conversely, St. Boswells seemed to combine the advantages of its more central situation with those deriving from the Analysis.

#### Industrial Sites Location

72. The Threshold Analysis concentrated on the major land user which is residential. However, location of industrial sites as the principal



(f) Hawick



(g) Innercichton and Walkerburn



(h) Earlstoun



(i) Melrose



1. Existing Built-up Areas



2. Committed Residential Development



3. Committed Industrial Development



4. Threshold Areas (numbers refer to Table No. 2)

Scale 1:12,500

source of employment will exert a strong influence on the possible distribution of population.

73. The manufacturing sector of industry is the major land user and is usually planned for within industrial estates. These may also accommodate certain service industries which do not need to be in the more usual central area location. The study of locational requirements was thus related to these sectors only and the industrial types likely to be attracted, with the aim of defining suitable sites. In general large homogeneous areas are required (i.e. 50-100 acres for a major estate with expansion possibilities).

74. The commitments for industrial land in the Peebles area are already high, and the surrounding land is of high landscape value. The relationship of this area to the other towns makes for inconvenient and long journeys, so that it was excluded in the search for a new major industrial location.

#### Areas Suitable for Industrial Development

75. In the search for suitable land it was possible to delete areas as unsuitable because of

physical factors such as altitude, steep slopes, flooding, peat bogs, afforestation, high landscape quality, or because of poor road accessibility. The remaining areas, although suitable for development, had some portions which were still affected by factors requiring a policy decision or necessitating extra expenditure over normal development costs, such as high quality agricultural land, difficult slopes, or areas underlain by sand and gravel deposits.

76. Analysis showed that high landscape value reduced many areas otherwise suitable for development, but the most extensive acceptable areas occur between Hawick, Ancrum and St. Boswells, stretching eastwards; and an area east of Earlstoun. Smaller areas can be found adjacent to Galashiels, east of Hawick, and in the valleys between Jedburgh and Hawick.

#### Areas with Positive Advantages for Industrial Location

77. There are factors which make some areas suitable for development particularly attractive for industry from a regional viewpoint. Where industry is already located, adjacent areas also become attractive, since benefits can often be obtained from industrial linkages. Areas with

Table No. 1

## Consecutive Thresholds

Prohibition for expansion (including committed development)

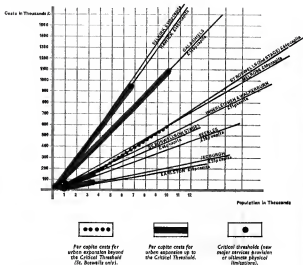
	1st Threshold		2nd Threshold		3rd Threshold		4th Threshold		5th Threshold		Total population
	pop.	Character	pop.	Character	pop.	Character	pop.	Character	pop.	Character	
Gulfechia	—	water and sewage	4,500	network	6,975	topography					31,477
Midway	—	sewage	1,100	water							1,100
Northton St. Barnabas & St. Beowulf	—	sewage	2,375	network	1,150	water and sewage		1,600 water if new treatment plant constructed	6,125 topography if major water resources provided		3,525
Harwick	250	water	194	network	3,156	sewage	3,094	topography			6,894
Jefferburgh	—	network	1,600	water	750	sewage	2,505	topography			4,855
Selkirk	—	water and sewage	991	sewage and network							991
Deuchelen & Midflow	—	sewage (both) and water (Midflow)									—
Clonville	—	all									—
Enchous	375	sewage									375
Peebles	—	water	800	sewage	700	water					1,500
Barrowhillam & Wallerburn	—	sewage	130	water							130
Twizelbank	—	all	4,400	sewage							4,400

Total Expansion Prohibition 35,447 population

Table No. 2  
Threshold Areas Comparative Costs

TOWN	AREA	Average	Population	Total per Capita Cost & (physical factor)	Total per Capita Cost & (quantitative cost)	Total per Capita Costs & (physical + quantitative)	Areas imposed for (1) 1st Phase Development (2) 2nd Phase Development (3) 3rd Phase Development
Gatlands	G. 11	25	625	81.5	36	117.5	(1)
	G. 13	20	500	80	36	116	(1)
	G. 14	70	1,750	45	36	81	(1)
	G. 21	105	4,275	82.5	36	118.5	(1)
	G. 22	85	2,100	76	36	112	(2) 2nd (650 persons)
Bawick	B. 11	30	250	26	0	26 (50 pops.)	(1)
	B. 21	25	625	115	99	214 (194 pops.)	(1)
	B. 22	41	1,075	70	99	169	
	B. 23	60	1,500	28	99	127	(1)
	B. 24	30	750	25	99	124	(1)
	B. 25	20	500	39	99	132	(1)
	B. 26	40	1,000	86	55	141	(2)
	B. 27	40	1,000	41.5	99	140.5	
	B. 28	10	250	44	99	143	
	B. 31	5	125	88	41.5	149.5	(1)
Foskies	F. 11	10	250	1	25	26	
	F. 12	35	875	26	25	43	
Jedburgh	J. 21	140	3,500	16	0	16 (1,000 pops.)	
	J. 22	140	3,500	16	10	26 (2,500 pops.)	
Kensington & Waltham	K.W. 12	5	125	16	35	51 (650 pops. only)	
	K.W. 13	40	1,000	26	35	61	
Madras	M. 12	10	250	20	35	55	
	M. 14	10	250	20	35	55	
Newtown St. Bernard's & St. Bernard's	N. 11	65	1,625	23	20	43	(1)
	N. 12	10	250	26	20	46	(1)
	N. 13	20	500	27	20	47	(1)
	N. 21	150	3,750	47.5	27	74.5 (3,150 pops.)	(2)
Enoch	E. 21	150	3,750	47.5	27	74.5 (3,150 pops.)	(2)
	E. 22	200	5,000	16	40.5	56.5	(1) part, (2) part, 1,150 pops., 2,850 pops.
	E. 23	5	125	14.5	0	14.5	

DIAGRAM II. COMPARISON OF THRESHOLD COSTS



good accessibility are attractive from the viewpoint of commercial traffic movements which require access from trunk or main roads, or proximity to a railway station or goods yard; and from the viewpoint of obtaining a minimum journey to work time for the maximum number of people.

78. Positive factors for location should not be applicable only to the existing situation, since the future population distribution and communications patterns may change the relative importance of these factors. (A constant testing of the merits of the situation has therefore proceeded with development of proposals). The journey to work was investigated in detail because of its importance for movement between towns in a rural area, whereas commercial traffic movements will be mainly related to the national network.

79. Analysis showed that there are few suitable sites where industrial linkage could be encouraged near existing concerns in the urban areas. From the accessibility viewpoint for commercial traffic the eastern portion of the A659 Selkirk to St. Boswells road; the A68 trunk road between St. Boswells and Ancrum; and the A7 trunk road north of Hawick, offer the best areas. When the new Galashiels to St. Boswells road via Tweedbank is complete, the section at Tweedbank can also be included. For journeys

to work, since the Tweedbank site is already proposed for industry, the best area would be around St. Boswells, especially as there is a railway station. Accessibility to Galashiels or Hawick stations is via heavily built-up areas which would make undesirable routes for commercial traffic.

## Conclusions

80. For a major industrial site the St. Boswells area offers the most advantages. Smaller sites adjacent to the towns, mainly at Hawick and Galashiels, are also advantageous.

## IMPLICATIONS FROM THE ECONOMIC STUDIES

81. The first major economic analysis assesses the impact of the extra 25,000 population on employment in the Area; the two stages of this are first to project the labour demand by existing industries, and then to estimate the labour demand by the new or expanded tertiary industries which would result from the immigration. The results indicated that in 1980 some 2,530 would be employed in agriculture, 21,090 in secondary industry and 21,340 in tertiary industry. Of the secondary industry employment



total, 12,720 would be employed in textiles, which represents an overall decrease from the 1965 level of 13,220, but includes a considerable decrease in woollens from 7,076 in 1965 to 5,630 in 1980. As with the textile industry, the construction industry was analysed in further detail, not because of the sheer volume of employment so much as the peculiar problems stemming from the new buildings required during the period up to 1980 for the accelerated immigration. In 1980, when the construction industry might be expected to have settled down, the employment might be some 3,610.

82. The implications for the social services were investigated, especially for Education and Health. Demand for pre-primary school places is expected to reach 2,103 due both to the increased population as well as the increasing proportion of children being sent. Primary and secondary school places are expected to be required for 20,600 pupils in 1980 compared with 12,700 in 1970; this increase is due to the different age-sex structure of the immigrant population as well as the general trend for more pupils to stay on at school beyond 15. Further education is expected to be demanded by 1,714 day students, more than double that for 1965, while evening student places are expected to increase as well. Hospital bed and staff requirements were traced and made consistent with the proposed changes in bed distribution between the various hospital types throughout the Area. The location of the proposed new general hospital to replace Poole was investigated to determine the optimal site; this was analysed in terms of the need to minimise the time taken for a patient to get the medical attention he requires; the results show that Galashiels achieves the objective according to current population distribution, but the margin over St. Boswells narrows with increasing population in St. Boswells.

83. The analysis of the optimum geographical distribution of the incoming population was undertaken on a cost-benefit basis. Many of the costs of developing the different sites were available from the Threshold Analysis, and these were used to determine cost-rankings of the different possibilities. Benefits were more difficult to identify and quantify, but an index was constructed on the basis of general economic interchange from the gravity formulae. The available figures suggest that the cheapest urban area to develop on any large scale is St. Boswells, where the development costs are some five per cent above normal compared to some fifteen per cent for Hawick and Galashiels; the benefit index, however (again subject to the limitations of the data), places Galashiels and Hawick as the urban locations with greatest benefits, mainly because of their existing size. The implications of these figures for the location decision require consideration of other factors, such as congestion and excess capacity, and the balancing of different benefit-cost possibilities; one important factor which favours St. Boswells in this secondary phase of analysis is the fairly rapidly rising marginal costs associated with developing Galashiels, which would present problems should there be further

immigration at some future date, or natural population expansion.

84. One would give less weight to this consideration the further ahead any expected population increase is likely to occur. The argument depends moreover on the assumption that redevelopment of Hawick and Galashiels can be postponed to the indefinite future.

85. Finally, transport was investigated with particular attention being paid to the Edinburgh/Glasgow railway line. Major points included in the work undertaken were, that, if transport from Edinburgh to the Central Borders were to be provided, the closure of the railway entails high costs from two major sources; the first cost stems from the necessity of providing extra buses and crews; while the second cost is the valuation of time which is estimated to be high for the railway passengers because in general they pay higher fares for a shorter time travelled.

## PATTERNS OF GROWTH

### Land Needs Study

86. In order to estimate the areas required for development a study was made into the detailed land needs for future population growth from 73,800 (1964) to 98,800 (1980) under two main sections (a) industrial and (b) residential and ancillary uses. The population and employment figures were taken from projections made by the Registrar-General and the Economics team. The study of Development Potential has revealed the opportunities for concentration of industry, and the most likely directions for residential expansion; this study therefore related to these trends.

### (a). INDUSTRY AND EMPLOYMENT

87. The total number of jobs projected for 1980 is 44,955 and the proportions in each sector of industry would be approximately as follows:

Primary sector	5.5%	2,535 jobs (decrease of 2,072 jobs)
Secondary sector	41%	21,085 jobs (5,795 new jobs)
Tertiary sector	47.5%	21,335 jobs (5,835 new jobs)

Land needs are calculated mainly for the manufacturing sector as the major land user, but some types of services industries which are inappropriate to central and residential areas would be also accommodated in industrial estates. Gross industrial densities should allow for parking space for a high car usage (52 cars/100 workers) because the present commuting pattern in the Area may be expanded, and the need to concentrate industry. The proposed acreage should be generous to allow a measure of flexibility in choice of sites.

### Requirements of the Secondary Sector

88. At present growth industries are mainly engineering and electrical. Other existing industries including textiles are likely to remain static or decline. The gross density should allow for increasing mechanisation, particularly in textiles.

89. Incoming industries may be expected to be of the type likely to be attracted to the New Towns where industrial densities are decreasing in the latest developments.

	<i>Jobs</i>	<i>Gross Density w.p.a.</i>	<i>Acreage</i>
Existing Growth Industries	75	74	1
Incoming Industries	5,720	35	164
	5,795		165

### Requirements of Tertiary Sector

90. Public utility and construction industries are at present growth industries, but only public utilities and transport are assumed to have an overall expansion due to 'induced growth'. Densities would be approximately half that for the manufacturing industries.

	<i>Jobs</i>	<i>Gross Density w.p.a.</i>	<i>Acreage</i>
'Natural' growth of existing industries	645	20	32
'Induced' growth of existing industries	260	20	13
	905		45

### Total Industrial Requirements

91. Land needs estimates should also include an expansion factor. This is assumed to be twenty per cent of estimated needs (forty-two acres). Total requirements for industry are thus two hundred and fifty acres (average density twenty-seven w.p.a.).

### (b). RESIDENTIAL AND ANCILLARY USES

92. Residential uses for net density calculations will include local roads, parking, incidental open space and children's play areas. Ancillary uses will include central area shopping, commercial facilities, community/welfare and social facilities, local shopping centres, recreational and open space provision (apart from golf courses) and major roads.

### Residential Uses

93. The Secretary of State in recent years has encouraged densities of the range 12-20 dwellings per acre.\* Considering the character of the Area, where development may be part of a new urban area or the site may be attractive for middle income housing, the density could be much lower. This is one way the Area could exploit its particular attractions in comparison to other Growth Areas, enabling more of the landscape to be incorporated within layouts. Where existing towns are being expanded the already linear pattern suggests that the higher figure of this range is desirable, so that residential areas can be kept within reasonable walking distances of town centres. The average density chosen should therefore take these variations into account, and because of the general shortages of buildable land adjacent to the towns the average net density proposed is 11.5 dwellings per acre (forty p.p.a.; twenty-five acres/1,000 pop.).

### Ancillary Uses

94. These have been subdivided into recreational open space and residual uses. Because of the unique character of the Area which is in fact a regional and national recreational area, and because the urban areas are quite small with easy access to the open countryside, the provision of open space in towns need not be over generous. Therefore an overall standard of seven acres per 1,000 population is proposed.

95. If the bulk of the population increase can be accommodated in the existing towns, then the need for land for residual uses (excepting educational) will largely be satisfied by small expansions and/or redevelopment of existing facilities, e.g. shopping and central areas. The provision for education is proposed as 3.5 acres/1,000 population to allow some expansion of existing accommodation and playing fields. The other residual needs may be reduced then to five acres/1,000 population since mostly existing towns are likely to be expanded. The recommended standard for all residual uses is then 8.5 acres/1,000 population.

### Total Land needs: Residential and Ancillary Uses

	<i>Density: acres per 1,000 population</i>	<i>Acres</i>	<i>Average gross density</i>
Residential net (40 p.p.a.)	25	625	
Recreation and open space	7	175	
Residual uses	8.5	215	
	40.5	1,015	25 p.p.a.

### Development Alternatives

#### MAIN POSSIBILITIES

96. Definition of the possibilities of development potential allowed alternative patterns of population distribution to be explored. Studies of the physical conditions and of the public utility networks suggest two principal variations for the pre-1980 population increase of 25,000. (1980 total population 100,000).

*Variation A*—Expand all existing towns

*Variation B*—Phased expansion of existing towns in conjunction with the growth of a major new community

97. Growth beyond 1980 has also to be anticipated and the year 2000 has therefore been adopted as the approximate target date for long range planning purposes. Growth for the period 1980 to 2000 may follow two trends:

1. A modest addition of 15,000 population by natural increase (2000 total population of 115,000).
2. Natural increase plus further substantial immigration, resulting in an addition of approximately 65,000 population (2000 total population of 165,000).

98. It has been assumed that the proposal for the site at Tweedbank near Darnick, all Local Authority commitments outlined in their Development Plans, and approved schemes for

\*Planning Bulletin No. 2.

development (accounting for a population of approximately 9,000) should be developed by 1980, and would therefore be common to all the possibilities considered.

#### ALTERNATIVE POSSIBILITIES OR MODELS

99. Taking into account all these considerations, six alternatives were considered.

##### Variation A—Expansion of Existing Towns

100. *Model 1:* Model 1 is based on the assumption that population should be distributed to all the towns within their growth possibilities determined by the Threshold Analysis. This revealed that about 28,000 people could be accommodated, which would meet the target population for 1980. Had the 'main quantitative thresholds' been crossed in all the towns, a further increase of more than 10,000 people could be allocated within the 'ultimate town thresholds' for the period beyond 1980. If, however, substantial immigration is expected into the Area beyond 1980 (i.e. in the order of about 50,000 people) this further population cannot be accommodated by the expansion of the existing towns. To meet this possibility the concept of a new community would have to be introduced, to be sited north-west of Hawick, or south of St. Boswells (Map No. 5(a)).

101. *Model 2:* Model 2 is based on the assumption that in growth up to 1980 the full 25,000 persons should be directed to the two largest towns, Galashiels and Hawick, within their 'ultimate town thresholds'. They will then have reached their physical limits of development and further natural increase of population beyond 1980 would need to be distributed to the other towns, providing for a maximum of 13,000 extra population.

102. If, however, substantial immigration is expected into the Area beyond 1980, this further population cannot be accommodated and a new community would need to be sited as in Model 1 (Map No. 5(b)).

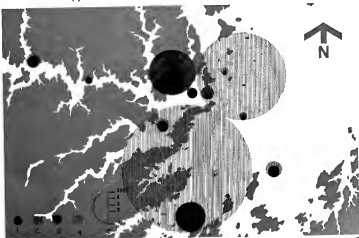
##### Variation B—Phased expansion of existing towns in conjunction with the growth of a new community

103. *Model 3:* Model 3 is based on the assumption that a new community would be provided before 1980 as well as taking into account the committed development for about 9,000. The balance of new population of about 16,000 could form the nucleus of a new community south of St. Boswells. Beyond 1980, a proportion of the natural increase would be accommodated within the potential of existing towns, whilst the balance of about 12,000 would be directed to the new community.

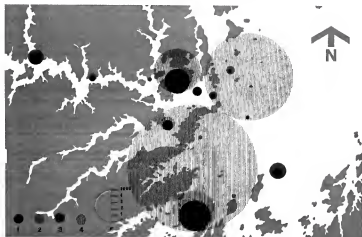
#### MAP 5. ALTERNATIVE DEVELOPMENT MODELS FOR POPULATION DISTRIBUTION

1. Existing population and committed development
  2. Population increase up to 1980
  3. Population increase beyond 1980 by natural increase
- (a) MODEL 1

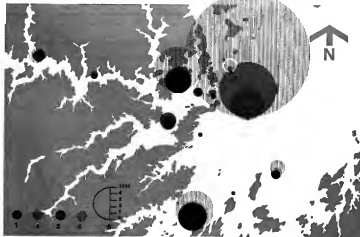
4. Population increase beyond 1980 by immigration
  5. Scale of population in thousands (diameter)
- grey indicates ground over 100 feet



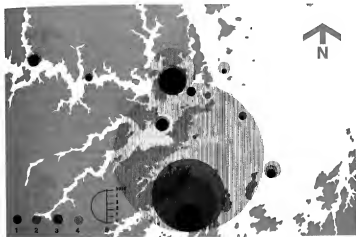
(b) **MODEL 2** (Key—see page 21)



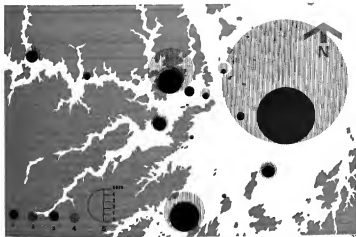
(c) **MODEL 3** (Key—see page 21)

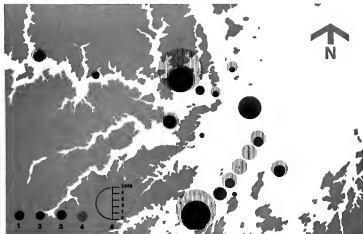


(d) MODEL 4 (Key—see page 21)



(e) MODEL 5 (Key—see page 21)





104. If substantial immigration continues after 1980, the existing towns would be further expanded up to their 'main quantitative thresholds', and the remainder (of about 38,000 people) would be allocated to the new community (Map No. 5(c)).

105. *Model 4:* Model 4 is based on the same assumption as Model 3 but the new community would be located north of Hawick (Map No. 5(d)).

106. *Model 5:* Model 5 is based on the same assumption as Model 3 but the new community would be located on exceptionally good building land east of the A68 between Anorum and St. Boswells (Map No. 5(e)).

107. *Model 6:* Model 6 is based on the same assumptions as Model 3 but with the population divided between several smaller settlements located along the railway line between St. Boswells and Hawick. Each settlement (of about 9,000 population, within walking distance of a railway station) would support a primary school, small shopping centre, etc., but would be dependent upon Galashiels and Hawick for major shopping and social facilities (Map No. 5(f)).

108. These six Models cover variations of population distribution which could be reasonably implemented.

109. A detailed appraisal of these Models was carried out by analysing industrial location and linkages, shopping and social needs, traffic movements and amenity factors. Simultaneously both the General Services and the Roads Technical

Committees assessed the Models. The following key implications emerged:

1. The problem of dilution of effluent in the River Teviot could cause serious difficulties for large-scale development north-east of Hawick.
2. Unless there was a large population build-up in the order of 30,000 in one location before 1980 a new regional commercial centre would not be economically viable.
3. Since it is not possible to determine now whether further substantial immigration would take place beyond 1980, the solution to be adopted should be flexible, but should also ensure a satisfactory urban structure at 1980.
4. The size of the proposed total growth renders it unlikely that a sufficient density of population could be located adjacent to the railway to ensure its continuance except on 'social benefit' terms before 1980. This factor tends to invalidate the main concept proposed in Model 6 but more detailed studies of this possibility may be worth pursuing.
5. There is a low number of journeys passing right through the Area (fourteen per cent) which removes the possibilities of congestion on the A68 trunk road connected with the location of development at St. Boswells.
6. The facts that the centre of gravity for the north-south work journey is at Galashiels and thirty-five per cent of the shoppers in Galashiels come from outwith the Burgh (compared with fifteen per cent in Hawick)

favour development of a regional shopping centre in this town.

7. Comparison of the costs of improving the A68 trunk road and the A7 trunk road emphasised that population increase should be concentrated in relation to the A68 trunk road, as this road is less costly to improve than the A7 trunk road.

110. Acceptable Models for 1980 were therefore reduced to Models 1 and 2. Because a major new community could not be introduced before 1980, the main urban strategy should preferably be based on Model 1, but with modifications to explore the advantages revealed by Models 3, 5 and 6.

## PROPOSED DEVELOPMENT

### Development Objectives

111. The aim of the Study is, as stated in the terms of reference, to identify the main possible lines of development and their locations in order that a population build-up in this area should spread its benefits throughout the Central Borders as a whole.

112. From analysis and interpretation of the studies certain development objectives can be stated as guide lines to the proposals.

1. The towns have a social independence which should be exploited so that their social assets and community facilities are fully available to the expanded population.
2. Approved local authority proposals for housing should be implemented and further expansion should be guided to those areas which are economically desirable and socially beneficial.
3. The high scenic value of the landscape should be preserved and the design and layouts of new housing and related facilities should be of the highest quality using building materials sympathetic to the traditional scene.
4. The distribution of the 25,000 population must do more than continue the present urban pattern, but should establish conditions that will encourage self-sustaining growth after 1980.
5. Since the area most suitable for substantial growth after 1980 is St. Boswells, development should be started there before 1980 in order to stimulate that growth.
6. The phasing of the proposals should allow the opportunity to revise and reassess the urban strategy.

### Proposals

113. It is proposed that there would be a population of about 100,000 by 1980 in the Central Borders, accommodated in a formal pattern of individual settlements closely linked by good road communications, and set in a beautiful landscape (see Map No. 6). Within this pattern Hawick and Galashiels would continue to be the largest settlements, but the latter with an extensive population catchment in elose support would become the main shopping centre. Hawick, however would be the most self-con-

tained unit due to extensive industrial development to offset its relative isolation. The largest single population expansion would be in the St. Boswells area, which would create an important focus for further growth. The high quality townscapes of Jedburgh, Selkirk and Peebles would remain tourist attractions, the last named expanding its role as a conference centre. Melrose would develop certain cultural facilities such as a museum and craft centre adjacent to the Abbey ruins. The major recreational area would be centred in the Tweed valley near Innerleithen.

114. The largest new residential areas would be to the south and south-east at Galashiels, at Tweedbank, and at St. Boswells. Smaller expansion areas would be at Hawick, to the west and north, and at Jedburgh. Other settlements would have more modest expansions, mainly infilling and rounding off where the quality of their setting, the limited utility services or the lack of buildable land restricted development opportunities. It is estimated that over 1,000 acres would be required for residential and ancillary uses throughout the Area. (See Table No. 3 and Diagram No. 3.)

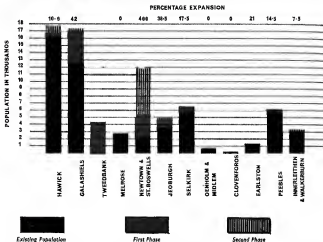
Table No. 3 Proposed Population Distribution 1980		
	1980 Population	Net Increase
Hawick . . .	17,900	1,604
Galashiels . . .	17,512	5,252
St. Boswells . . .	12,185	10,125
Selkirk . . .	6,825	991
Peebles . . .	6,348	800
Jedburgh . . .	5,045	1,400
Tweedbank . . .	4,400	4,400
Innerleithen and Walkerburn . . .	3,407	245
Melrose . . .	2,642	—
Earlston . . .	1,450	250
Dunholm and Midlem . . .	653	—
Clothfords . . .	140	—
Rural Areas . . .	20,537	—
Total approximates . . .	100,000	25,000

115. The pattern of employment opportunities would slightly shift in emphasis towards a concentration of industrial development on the easily buildable land at St. Boswells. The site would be well served by major roads and a substantial amount of housing would be available for employees. Smaller industrial concerns would continue to be accommodated in the towns. It is estimated that a total of approximately 250 acres would be required. The present unco-ordinated efforts of each town to attract industrialists could dilute the inherent advantages of the Area. A concentrated effort therefore needs to be made on behalf of the Area as a whole, preferably by a Publicity or Industrial Promotion Group.

116. The natural beauty of the landscape would be further enhanced and improved by tree planting and exploited by defining a network of pedestrian greenways throughout the whole Area, some of which would provide specific interest such as nature and history trails, and would link places of interest.

117. The aim would be to exploit the high potential for increased recreation and tourism.

DIAGRAM III. DISTRIBUTION OF URBAN POPULATION



The catchment area of short stay tourists extends to Edinburgh and the north-east of England. To cater for the long stay tourist there would be possibilities to site summer villages within wooded and secluded settings. The major proposal would be to create a large lake from the River Tweed at Innerleithen for a water sports and recreation centre, but other facilities would also be developed throughout the Area. Existing historic and architectural interests in many of the settlements would be further exploited and sites of antiquarian interest could be developed.

118. Road accessibility would play an important part in linking the settlements and a distinct hierarchy in the road network would be defined. The major routes would be the A68 trunk road with connecting links to Galashiels and Hawick. The A7 trunk road would then provide a tourist route passing through extensive moorland and wooded areas of high scenic value. There would be road realignments to improve circulation round Galashiels, Selkirk, Denholm, Melrose and St. Boswells, and minor improvements would be necessary to improve environment and amenity within the towns.

119. These development proposals will fulfil the desired aims and, should further major growth occur above the natural increase of the population, there would be opportunities for development in the St. Boswells area.

## Programming

120. The degree of accuracy in any planning proposal continually decreases in proportion to the period of time involved. Therefore it was

thought important to introduce two phases of development in the implementation of the proposed population distribution for 1980 in order to create opportunities for review.

121. The first phase would include the development of areas for which predictions can be made on a sound basis. These would include present commitments from approved local authority Development Plans, and areas within existing public utility networks which are ready for urban expansion and where frozen capital investments should be exploited. It is an important point to note in regard to these proposals that no sudden change in existing trends is advocated as this will adversely affect the economic and social aspects.

122. The first phase of development may be subdivided as follows:

- (1) All towns with commitments for development should proceed with these plans both where these concern population expansion or the local rehousing programme. The population expansion therefore does not reflect the actual numbers of houses built but shows the net increases. The commitments in each town are as follows:

Tweedbank . . .	4,400	Peebles . . .	800
Galashiels . . .	1,637	Earlston . . .	250
Jedburgh . . .	1,355	Inverleithen and	
Selkirk . . .	866	Walkerburn . . .	200
		Hawick . . .	194

Total committed expansion 9,692 population

- (2) Other areas adjacent to existing towns within existing public utility networks:

Galashiels sites G.11, 13, 14	Total . . .	2,875 pop.
Hawick . . . H.11		250 pop.
Selkirk . . . S.11		125 pop.

Total proposed development 3,250 population



- (3) The first major decision therefore is the location for further growth during the first phase. In order to gain the maximum benefit from capital expenditure, this location should offer long term growth possibilities. The analyses contributed towards the selection of the 'optimum' growth point in the Area by indicating advantages for the St. Boswells area. It is proposed therefore that St. Boswells should be the place where the capacity and areas of existing public utility networks should be first extended, and the remaining accommodation of the sewage plant should be exploited by the allocation of approximately 3,500 population. Housing will thus be provided close to the new industrial focus, which is of crucial importance. The following areas would be developed:

St. Boswells sites B.11, 12, 13, 22 (part)	
Total	3,525 population
Total population in the first phase 16,467	

123. At the end of the first phase there is an opportunity of reassessing the planning proposals for the second and third (beyond 1980) phases of urban growth. Although planning proposals have been formulated up to 1980, new facts and experience gained during the first years of development will provide a basis for future decisions. Thus, an important element of flexibility is indicated.

124. The second phase of population expansion would require major capital investment for public utility services, and would generally be sited in areas within the extended capacity and area of public utility networks. Whilst all towns could be further expanded within these limitations, the need to direct the main flow of urban expansion becomes more relevant in the second phase which should lead to the self-generating community of 1980. St. Boswells offers this opportunity, although capital will be required for a new treatment plant and water supply. The proposed by-pass commitment of St. Boswells could be exploited and a nucleus of new urban development created. Expansions should also be undertaken in the smaller towns, mainly by infilling and rounding off, and Hawick and Galashiels should be further expanded.

Development during the second phase would be in the following areas:

St. Boswells sites B.21, B.22 (part)	Total	6,500 pop.
Hawick sites H.24, H.26 (part)		1,250
Galashiels site G.22 (part)		650
Jedburgh (infilling)		45
Innerleithen and Walkerburn (infilling)		45
Total proposed development in second phase		8,990
Total proposed development in the two phases		25,087

125. The third phase would grow from the foundation laid in the first and second phases. All centres could expand marginally, but the main potential would be at St. Boswells.

126. The time period of the first and second phases can be roughly defined. The total population increase which is suggested could be allocated to the first phase, is approximately 16,500. At the estimated annual growth rate the first phase

would extend from 1968-76. The second phase would therefore occupy the period 1976-80 when a further approximate 8,500 population would be accommodated to reach the total of 25,000.

## Industry

127. Uncontrolled industrial location is likely to harm the environment and continuance of the present pattern may not lead towards efficient industrial growth. Therefore new sites will require careful planning. There are many factors influencing location which have been analysed and may be summarised as follows:

128. A large site should be available to give advantages of concentration and future expansion. The A68 trunk road would be the major industrial route. The existing railway facilities should be exploited. Existing sites within the towns should be cleared and made ready for immediate occupation. The design and layout of sites should be of a high standard as even outside the areas of exceptional landscape value a badly designed building could adversely affect the visual scene.

## MAJOR INDUSTRIAL SITE

129. The area at St. Boswells fulfils the requirements for a major site and would provide an industrial focus for the Area. The location of the first development could be to the east of the present industrial site at Charlefield adjoining the A68 trunk road, and the railway. Once this is established, then the growth should have every opportunity to be self-generating due to the possibilities of industrial concentration on a new estate. Housing for employees will be available nearby in the proposed new housing areas at St. Boswells.

130. The present Charlefield site is not intensively used. It presents a dilapidated appearance and should be redeveloped. In the long term there will be room for expansion southwards and westwards to the railway track. When required, there may be a case for reopening the railway spur to the estate.

## OTHER INDUSTRIAL SITES

131. In the existing towns there are already areas zoned in the Development Plans for industry. However, these can generally only accommodate industries of a small nature due to limitations of the site, access and public utility services. Whilst it is desirable that a large proportion of employment, especially female, should continue to be available to people close to their homes, it is more important that growth should be generated. Consequently industrial zones proposed at Peebles should be restricted to the better locations north of the river where reasonable road access is available and derelict sites should be redeveloped. Similarly, the proposed new site at Earleston which is in close proximity to St. Boswells along the A68 trunk road might dissipate advantages of concentration and should be omitted for the time being.

132. The proposals for new industrial sites are shown in Table No. 4.

Proposed Industrial Areas	Existing Proposals (acres)	New Proposals (acres)
Galashiels - - -	10	
Tweedbank - - -	45	
Hawick - - -	6	25
Jedburgh - - -	10	
Selkirk - - -	5*	
Newtown St. Boswells and St. Boswells - - -	5	
Peebles - - -	17-5***	
Innerleithen and Walkerburn	7	
Charlefield area - -	60	60
	165-5	85
Total: 250 acres		

\*plus redevelopment of existing industrial area.

\*\*\*approximately half of field

## Townscape and Environment

133. The towns have two major assets, the unique character of their older cores, and their location within high quality landscape. The nature of future growth should ensure that these assets are preserved. General proposals are therefore made to prevent deterioration of the townscape, and to suggest ways in which the quality of the urban environment may be improved.

## TOWNSCAPE

134. Visually, there is much to lose from unsympathetic development or treatment. Population expansions will generate increased traffic movement in particular. This will necessitate careful adaption of traditional development patterns and urban spaces. Recommendations are proposed which will conserve the existing townscape quality, as follows:

1. Schemes for redevelopment and improvement of central areas should be sympathetic to the existing scale, street patterns, landmarks, building materials, topographical and other features which go to make up the attractive character.
2. Where redevelopment takes place, the attractive views out of the towns towards the hills should be exploited.
3. Small scale landscaping and planting of semi-mature trees should be undertaken to enhance existing focal spaces, and to screen eye sores.
4. Improvement of the urban fabric is needed in many areas and could be achieved by restoration of natural stonework walls, by the external painting of buildings to an overall design (as at Kelso), and improved maintenance of fences, walls, steps and street surfaces.
5. Rationalisation of traffic circulation should be attempted within each town to create environmental areas. In particular, extraneous traffic should be diverted from main shopping streets to improve safety and convenience, since it is not possible to justify the creation of pedestrian precincts on the evidence of traffic volumes, except in Galashiels.
6. More off-street car parking should be provided in central areas.

## THE RESIDENTIAL ENVIRONMENT

135. Optimum standards should be aimed at for any new development based on pedestrian and vehicular separation (the degree varying with the density), the provision of private and public open space and play areas, and an imaginative architectural form. In existing areas a good deal can be achieved by revitalisation techniques in the areas of low quality environment such as:

1. Modification of housing layouts by stopping off some through roads or demolition of selected houses to provide children's play spaces, communal open spaces, off-street parking, community facilities, etc.
2. Tree planting and landscaping to improve the micro-climate and enhance the environment.
3. Preservation of the traditional housing groups of high architectural quality by restoration of natural stonework, external painting and sympathetic structural improvements to provide more modern living conditions whilst maintaining their attractive character.
4. Existing pedestrian ways should be extended into a comprehensive network linking residential areas with the town centre, parks, regional greenways, and major industrial areas.

## SPECIFIC PROPOSALS FOR TOWNS

136. In addition to the foregoing general recommendations, there are some obvious cases in specific towns where proposals can be made to illustrate this process and where there are possibilities for further detailed studies.

137. *Hawick*: Drumlanrig Square has a potential for improvement by infilling and bold landscaping in the central garden. Slitrig Crescent is an example of a traditional housing group with great charm which could be improved by careful infilling, using traditional stone and the preservation of traditional house fronts. A pedestrian route could usefully be created beside Slitrig Water which might connect with Victoria Park along the main bank.

138. Traffic volumes in the High Street seriously affect the environmental quality and safety of the town centre. A relief road to remove extraneous traffic would provide a remedy. However, additional car parking to the rear of the commercial premises would leave the street free of all traffic except essential vehicles and make shopping safer.

139. *Galashiels*: In conjunction with the proposal for a relief road and the projected expansion of the shopping centre, the opportunity should be taken to remove all traffic from Chennel Street to make it a pedestrian precinct and service the shops from the rear. Improved car parking facilities should also be provided.

140. *Peebles*: The derelict mill between Castle Hill and the River Tweed constitutes a bad eyesore from the historic High Street (particularly the chimney), and should be demolished. The re-siting of the car park on old Town Green

which also has a dangerous access to the A72 road would restore the attraction of this pleasant open space. The lamp standards in the High Street are unsympathetic to the pleasant architectural quality of the street. Lighting fittings would be better mounted on the buildings themselves (as has been done in Melrose and Kelso).

141. Any proposals which would destroy the visual containment of the High Street by realignment and widening of the Cuddy Brig at the west end should be resisted. The unique character of this street should be preserved and a relief road should be found to the north, if possible to link with the A703 road.

142. *Melrose*: Screen planting should be introduced on the ridge line south-west of the town centre to reduce the visual intrusion of development in Douglas Road.

### *Methods of Implementation*

143. These may be the type of proposals which are not considered urgent compared with the pressing needs of slum clearance, but it is in the interests of the Borders as a whole that the urban environment, as well as employment opportunities, should attract the incoming population in sufficient numbers to stimulate its growth. Implementation of these proposals will therefore benefit from local participation to speed the process. Local interest in environment and matters of amenity should be stimulated by deliberate publicity, and organised by bodies like the Border Forum. The formation of societies to consider particular aspects of environment should be welcomed especially in co-operation with the professional bodies such as the Scottish Civic Trust and The National Trust for Scotland, as well as individual specialists working in the Borders. Positive suggestions for environmental improvement should be encouraged. A landscaping authority should be established to provide a tree nursery and devise methods for improving urban areas by planting, and interest in trees and care and maintenance of landscaping works could be encouraged in the schools.

## **Residential**

### **HOUSING BUILDING RATES**

144. It is proposed that a regional housing authority or the Scottish Special Housing Association should be appointed to relieve the individual efforts of the various local councils to meet the uneven construction burden which must arise in the desired phasing of implementation.

145. The Economic team, in papers on the Construction Industry and Demand for Private Housing, have estimated the rates for house-building to meet the needs of both the existing and the immigrant population until 1980. In the private housing sector production of dwellings is expected to rise from one hundred per annum in 1967 to one hundred and sixty per annum in 1980.

146. The local authorities are expected to continue to add to the existing housing stock at

a net rate of one hundred and sixty three dwellings per annum. Other public housing will be initially concerned with the Tweedbank site which will be completed at an annual rate of three hundred and thirty dwellings. Thereafter, this sector could produce houses at the rate of four hundred and seventy-seven per annum.

### **LOCATION AND ACREAGES OF NEW AREAS FOR DEVELOPMENT**

147. From analysis, areas have been selected to be developed for residential and ancillary uses (see Table No. 5). The actual layout and allocation of functions within each area have not been worked out in detail but the average gross density adopted will allow a high degree of flexibility in the design of each area.

### **DEVELOPMENT OBJECTIVES FOR NEW HOUSING AREAS**

#### *Intensity of Development*

148. The character and traditions of the Area preclude dwellings in high-rise blocks of flats, and the average net densities are proposed at forty p.p.a. Nevertheless, there should be a wide variation within this figure, especially with smaller sites. The best use should be made of scarce building land adjacent to towns by using higher densities, so that the maximum number of people are within walking distance of the town centres; and so that the compact urban character of the towns is maintained.

149. There is no such necessity for compactness in the new urban areas where lower densities could be used, since convenient access to community facilities can be part of the design. Throughout the Area there will be a demand for private, middle-income housing at lower densities. This type of development should make use of areas not suitable for compact development. Because of the scattered pattern of development in the Area making for long journeys to regional shops and work, car parking provision should be generous.

#### *Development Patterns*

150. All new development should aim at some degree of pedestrian and vehicular segregation which should be greatest at high densities. The structure of new development should allow for high car ownership and usage, but within a framework of environmental areas in conjunction with a convenient distribution of social and local shopping facilities for the residents.

151. Social, welfare and local shopping facilities in all new development should be sited on the principal pedestrian ways leading to town centres. Wherever possible, primary schools should be adjacent to the local centres.

152. Public transport systems should have good connections with the regional public transport service. Halts should be within a quarter of a mile of all dwellings and should be sited at clearly defined nodal points on pedestrian ways and at concentration points of activity like local centres.

Table No. 5  
Main Sites for Residential and Ancillary Development\*

Phase One

Town	Area	Approx. Acreage	No. of Dwellings	Population (calculated at 25 p.p.a.)	
Galaashiele	G.11	25	164	625	Agricultural land—extension of Wester Langlee housing area
	G.13	20	132	500	Agricultural land between A7 and embankment of former Selkirk branch railway line
	G.14	70	460	1,750	Agricultural land south and west of cricket ground and south of Galaashiele water works
Hawick	H.11	10	66	250	Agricultural land—rounding off the Burnfoot housing scheme to the north-east
Selkirk	S.11	5	33	125	Agricultural land—west of Rosebank Quarry
Newtown St. Boswells and St. Boswells	B.11	65	428	1,625	Agricultural land—south of Eldon village
	B.12	10	66	250	Agricultural land—east of Auction Market Newcomen
	B.13	20	132	500	Agricultural land—south of St. Boswells
	B.22 (part)	46	303	1,150	Agricultural land—south of St. Boswells

Phase Two

Town	Area	Acreage	No. of Dwellings	Population	
Galaashiele	G.22 (part)	26	171	650	Agricultural land—east and west of Mossilee
Hawick	H.25	40	263	1,000	Agricultural land—west of Wilton
	H.24	10	66	250	Agricultural land—Haggle Ha' Brae
Newtown St. Boswells	B.21	150	969	3,750	Agricultural land—between Newton and St. Boswells south of A68
	B.22 (part)	114	750	2,850	Agricultural land—south of St. Boswells

\*Areas which have been proposed by local authorities and approved for Development have been included, and for details of these releases should be made to the County Development Plans.

## Detail Design

153. In the past a limited range of building materials has led to the production of visually homogeneous towns. The vast range of materials available today presents a great temptation to the designer who must exercise sensitivity and selection in his choice of colour and textures so as to integrate the new development with the old. Church Square, Galaashiele, is an example of successful integration of new with old, whilst the extensive redevelopment at Selkirk by its careful siting and layout provides an excellent example for future development.

## Social Services—Education

154. There will be an increasing concentration of educational services in urban areas at all levels. The proposed educational facilities are concerned with the towns and areas where specific proposals for population expansion have been made. These may be described at the four main educational levels, as follows:

### Pre-School

155. The provision of creche units should be encouraged in industrial estates and shopping centres. Nursery classes should be attached to the new primary schools wherever possible.

### Primary Schools

156. There are already commitments for six new schools, mainly replacements, and expansions, and these should be implemented. To

accommodate the increased population schools should be provided at Newtown St. Boswells (2 stream), St. Boswells (2 stream), Tweedbank (2 stream), Galaashiele Mossilee area (2 stream), Hawick Wilton area (1 stream), Selkirk Public School (expansion to 2 stream), and Jedburgh Allierly Park area (1 stream).

## Secondary Schools

157. It is expected that secondary education will be fully comprehensive by 1970. There are commitments for a new school and expansions, and these should be implemented. To accommodate the increased population, the proposed school for the Melrose area should be larger than envisaged and located in the St. Boswells area (1,000 pupils), and Galaashiele Academy should be expanded further (to 1,500 pupils).

## Further Education

158. There are already commitments for expansions and these should be implemented. Since the demand is now likely to accelerate, Galaashiele College of Further Education should expand the existing courses and also introduce new subjects; and a College of Education should be established by 1980 in the St. Boswells area. Beyond 1980 there may be a demand for a technological university which might incorporate the Scottish Woollen Technical College. There would also be a continued expansion of adult evening courses both of a recreational and vocational nature, mainly based on centres of secondary education.

## Social Services—Health

159. A new District General Hospital is required to replace Peel Hospital, and an early decision on its siting should be made.

160. It is proposed that detailed investigations are undertaken of possible sites in the area between Galashiels and Melrose south of the River Tweed. A hospital in this location would have the following advantages:

1. It would enjoy convenient road connections with all parts of the Borders via the proposed new road link between Galashiels and the A68 trunk road.
2. The proximity of the Tweedbank housing area would provide a reservoir of labour for the new hospital.
3. Staff, particularly nurses, would have the social facilities at Galashiels available within a convenient distance.
4. There may be organisational advantages in locating the new hospital near the Dingleton Hospital which serves the Borders for mental disorders. It may be feasible, for example, to provide a joint nurses' home.

161. Investigation should continue into the possibility of adapting the present system of Cottage Hospitals into 'Community Health Centres'. These would offer a wide range of services, including those for maternity and geriatric cases, accommodation for group practice, dental surgeries and ante-natal clinics.

## Social Services—Shopping

162. The proposed population distribution at 1980 considerably boosts the number of people within the hinterland of Galashiels, which will include the new development at St. Boswells. Hawick and Peebles would also act as shopping centres for portions of the Area. Their catchment populations would be as follows:

Table No. 6	
Main Shopping Centres 1980	
Town and Hinterland (including local centres)	Population 1980
Galashiels (including Selkirk, Tweedbank, Melrose, St. Boswells, Newtown St. Boswells and Earlstoun)	23,150
Hawick (including Jedburgh)	30,150
Peebles (including Innerleithen and Walkerburn)	15,100
Total	98,400

163. Galashiels would be the major centre for consumer durables by 1980, and its considerable catchment population increase would clearly stimulate renewal in the Central Area. However, given local facilities at district level, this demand could probably be met largely within existing frontages for redevelopment and intensification of use. On the information available, the net additional floorspace justifiable by 1980 is unlikely to exceed 20-25,000 square feet. The expansion in population proposed for Hawick and Peebles would help to regain ground already lost, but pressures for new shop floor space could be met within existing frontages.

164. At the district level of facilities the demand for shop floorspace could probably be met within existing frontages except in the St. Boswells area. In the St. Boswells area the population catchment could support a new centre containing 30-40,000 square feet of retail and service shop space but major shopping for consumer durables would be provided by Galashiels. Selkirk and Jedburgh would have additional support to maintain their present range of facilities. At Innerleithen, Walkerburn, and Earlstoun the standard of 'local' facilities will be reinforced but in the new development at Tweedbank a small new local shop group would be needed although regular use would also be made of Melrose and Galashiels. Melrose will retain its function as a local centre.

## Recreation

165. Recreation is largely a mental attitude, and the environments of leisure are created within surroundings which are suitable for specific uses, and contain the signs and symbols which help to induce certain states of mind. The artifacts of this phenomenon include rugby posts and fishing rods, and the artifices, readings of poetry, and son et lumière.

166. The Area has a diversity of features which have the power to affect receptive and susceptible minds. These include not only the rugby pitches and river beats, but ancient earthworks, Roman camps, and peel towers, and they can excite visions of forgotten clans, marching legions and plundering rivers. Literary works and traditions can evoke their particular responses in a similar manner. A necessary prerequisite of such experience is a modicum of knowledge, and it is towards its unpatronising dissemination that the following suggestions are made.

167. These are partly based on the ability of subjects to transcend time, space and circumstances, by identifying themselves with objects and events from the past or the unknown which are presented to them in a skilful way. The Irish do it with their castles and fiddlers, the French with Sioux camps and warpaint, the Americans with dude ranches and rodeos. Seen not as a static museum piece by disinterested observers, but as an integral part of their environment, the method is already practised at the Roxburgh field centres and wild life reserves.

168. It is suggested that, as part of the tourism—recreation—education system, some of the Iron Age settlements, Roman camps and peel towers are reconstructed and prepared for display and habitation. These should be part of the recreation network and closely linked with a coherent social-cultural administration.

169. It is also suggested that the local authorities, or an organisation like the Forestry Commission, establish unobtrusive clusters of cabins in selected parts of the Area to hire out for short term residential use. Such a scheme would involve detailed site analysis to ensure amenity and service standards, but the planned provision of such facilities would meet a very

obvious and growing demand. These could also be utilised by organised groups, including those of further education and physical recreation courses and schools. The well-wooded sections of the suggested Country Park offer interesting possibilities in this direction.

170. Melrose, with its unique features and surroundings, is already a major tourist attraction, and both the Abbey and museum admirably cater for the tastes of the more sophisticated visitors. But to the uninitiated, who wander round in an aimless manner looking at the ruins with incomprehension, it is all a mystery. In a society accustomed to all the audio-visual media a new approach is needed. This might include an outdoor model of the whole Abbey complex at its zenith, including the Eldon Hills and Gattoside, and of such scale that visitors could walk round it. The popularity of model villages such as Madurodam at The Hague, while not to everybody's taste, should not be ignored as a medium of communication, and more could be done to make the magic of history come alive.

### Wild Life Reserves

171. There are a number of Scottish Wild Life Trust Reserves and Sites of Special Scientific Interests in the Area, a Nature Trail at Glenfries, and a Wild Life Museum at Hawick.\* The objects of the first two types as Dr. Ian Melkie points out are not always compatible with large numbers of visitors. A combination of the latter two types on one site offers many advantages; preserved specimens can be shown under cover in simulated natural surroundings, as at the new centre in Aviemore, and in the Amsterdam City Park. Slides and films can be projected with recorded commentaries and models and principles can be explained, in the same way as visitors are entertained in the Grand Canyon, U.S.A.

172. When related to a nature trail designed with hides, access corridors and other aids, provision can be made for large numbers of people, and higher expenditure on capital investment and maintenance can be justified. It is suggested that in the Country Park area a concentrated open air complex containing as wide a variety of wild life habitats as possible be constructed, with appropriate facilities for maximum viewing and minimum disturbance. With car parking provided and other services, such a feature should justify reasonable admission charges.

### Country Park

173. In terms of suitability and accessibility for large-scale popular recreation, the Tweed Valley between Peebles and the confluence with the Etrick offers the greatest potential for development as a Country Park. At a relatively low altitude and with good orientation, the local climate is conducive to many less active forms of leisure. St. Mary's Loch which is at 800 feet O.D. does not share these climatic advantages.

174. With large areas of woodland, backed by great stretches of open hills and covered by an

extensive system of forest paths, old drove roads, and a disused railway, it offers many opportunities for varied pedestrian and equestrian activities, including pony trekking, field centres, nature trails and camp sites. It does, however, lack a large area of water, which can be both a focus and a facility for many forms of recreation. It is suggested that by creating a system of lochs, the potential of this area could be very much increased.

175. Such a scheme would involve detailed hydrological, climatological and ecological surveys, and close collaboration with the relevant disciplines at a design stage. By adopting a principle of concentration, the detailed planning and design of such a scheme becomes more feasible, economical and efficient.

### Pedestrian Systems

176. Emanating from areas of concentration of people, including the towns, are 'low pressure' footpath systems which offer opportunities 'to get away from it all'. The Countryside (Scotland) Bill makes provision for the establishment of public paths and long distance routes, by access agreements between the local authorities and persons having an interest in the land.

177. The Pennine Way, which at present extends southwards from Kirk Yetholm, is perhaps the most obvious example of a long distance route, forming part of a national network. It is suggested that a route be established which will connect the Area with this system at the Roman Camp on the Border at Coquet Head. From there it would come up Dere Street to the Melrose area, over Bowden Moor, to meet the Tweed Valley at the Rink, and from there by disused roadways and drove roads to Peebles. From there a number of choices are available, one being the disused railway to Penicuik, and the Edinburgh area.

178. Many such possibilities exist throughout the Area, including river walks, and tracks through the arable farmlands, and these should be the subject of a detailed survey in collaboration with local interested parties and organisations. The problem is one of reconciling public interests with private rights, and implementation will no doubt revolve around economics, including compensation, maintenance and supervisory services.

### Golf Courses

179. The yardsticks by which individuals measure the acceptability of their surroundings and hence their own, or other people's status, can often be identified with particular objects and facilities. Golf courses fall within this symbolic system and it is a noteworthy deficiency that, with the exception of Peebles, there is not a first class eighteen hole course of championship standard. The Borders Golfers' Association have been aware of this situation and have been actively engaged on its rectification. They have

\*Wilson Lodge Public Park.

Proposed loch at Walkerburn



Site of the Proposed Development at St. Boswells



already started a survey of likely sites, potential membership, costs of acquisition, development and maintenance. Criteria for site selection have been established, including soil type, aspect, size, terrain and accessibility.

180. There are a number of alternative methods of achieving such a scheme; the most advantageous appearing to be a local county authority, consortium of authorities or a consortium of local voluntary organisations, acting as principals. Within the Area the Border Golfers' Association can draw on considerable expertise relevant to planning and management, and are non-partisan. Their co-operation in this venture should be encouraged.

#### Camp Sites

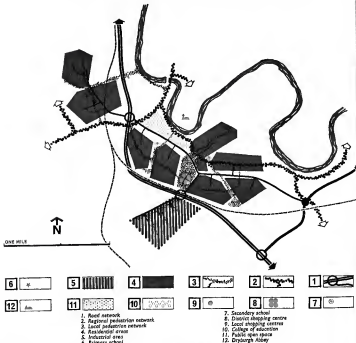
181. The accommodation of a mobile population proliferating throughout the countryside in tents, mobiles and caravans, is a current planning

perplexity. The increasing desire for nomadism, or the two house life (even although one is only a room on wheels), has produced an increasing demand for camp sites. There are already a number in the Area, more are being planned, and most of them are of a reasonable size, and with a few exceptions, well sited and screened.

182. Camp sites are undoubtedly resented by many as an unwarranted visual and social intrusion. They do, however, have an ephemeral quality which makes them less objectionable than huddles of shacks. The critical factors in the siting of camp sites include desirability, i.e. local opinion and consumer demand; accessibility from road networks, and to points of interest; visibility, or as some would prefer, invisibility; services, water, sewerage, etc.

183. It is suggested that wherever possible camp sites should be restricted to areas which render them as inconspicuous as possible. Existing

MAP. 7. DEVELOPMENT SCHEME FOR ST. BOSWELLS EXPANSION





wooded areas, or sites suitable for ground moulding and extensive tree planting, should be given preference. They should not be sited in a manner which could detract in any way from the sites of historic interest or famous view points. It is also suggested that a more detailed survey of the Country Park area be undertaken to select suitable sites which could then be planted with trees as soon as possible, for development when effective screening was achieved.

### **A Study for Expansion of the St. Boswells Area**

184. Map No. 7 demonstrates a possible community structure for the expansion area at St. Boswells. The new residential areas would amalgamate the two villages extending south and eastwards of St. Boswells and northwards of Newtown St. Boswells, contained by woodland and the lower slopes of the Eildon Hills. Recreational and community facilities such as children's parks and play areas, public houses and churches would be included.

185. A 'local distributor' road network would serve the residential areas including the existing villages. This road would have access at two points to the improved A68 trunk route which would bypass the urban areas, and also to the Kelso road which connects with the A68 trunk road. Independent of the road network would run a system of footpaths linking the residential areas, the shopping centre, the main open spaces like St. Boswells Green, and the industrial estate. This system would link to the pedestrian greenway running from Dere Street to the River Tweed and the Eildon Hills, and would form part of it.

186. The new urban area would be close to the expanded Charlesfield industrial estate, which would have direct road access from the A68 trunk road. Journeys to work would also be made via this interchange from the local distributor road. However, if traffic increases on the A68 trunk road, it may be necessary to separate regional and local traffic and reduce the number of junctions. The industrial area would be served from the Kelso road junction and interchange movement would be eliminated at the present access point.

187. A 'district' level shopping centre would be located at the meeting point of both pedestrian and local distributor road networks. The existing small shopping centres in Newtown St. Boswells and St. Boswells would continue to serve the peripheral areas.

188. New primary schools would be located centrally within their residential catchments on the footpath system to allow easy walking distances for children. Existing primary schools would also accommodate some extra children. A new secondary school would be sited adjacent to the local distributor road system since its catchment extends beyond the St. Boswells area. Similarly the new College of Education would be located so as to have good regional road access.

189. The site of this proposed new development lies within well-wooded farmland with views of the surrounding hills and adjacent to an attractive stretch of the River Tweed. With imaginative layouts to incorporate some of the natural landscape, and with restrained use of materials, there is every opportunity to produce an environment of high quality.



## Section II: Supporting Studies

### LANDSCAPE

#### Introduction

190. Landscape studies are concerned with those factors of the physical environment which have an influence on the pattern of land use and human activities. In the current study the most important of these are Geology, Relief, and Climate, the effects and interactions of which lead to the evolution of soils and vegetation and less directly to the development of agriculture, scenery and human settlements.

191. It is largely for reasons of analysis that these sometimes arbitrary distinctions are made between the elements which comprise the total environment; for example, Geology and Relief are both concerned with rocks, the former with their chemical and physical qualities, and the latter with their effect on the configurations of the earth's surface.

192. Of necessity the survey of natural features and resources was carried out at different scales and degrees of detail. Initially, the Tweed basin, as defined by the Tweed River Purification Board, was accepted as the broad setting within which more precise studies were undertaken.

193. The Tweed basin lies on the east side of the Southern Uplands, and is bounded on the landward side by the Lammermoir, Moorfoot, Etrick Forest and Cheviot Hills, with the North Sea to the east. These natural boundaries give it a certain coherence and identity which is not shared to the same extent by the more arbitrary Survey Area.

#### Geology

##### General

194. The earliest rocks of the Tweed Basin are those of the Ordovician and Silurian Ages, deposited under marine conditions between 200 and 500 million years ago. After the Silurian Age the consolidated sediments were elevated, becoming part of the extensive Caledonian mountain system; subjected to erosion and subsidence, and, during the Lower Old Red Sandstone age, partly covered by a succession of sediments and lavas. A further period of elevation, erosion and subsidence was followed by the deposition of the Upper Old Red Sandstone and Lower Carboniferous sediments. In addition to sedimentation, the Carboniferous Age was characterised by major volcanic activity, during which lavas either poured over the surface in

extensive sheets, or formed volcanic hills such as the Eildons.

195. The next event of momentous geological importance was the Ice Age, about one million years ago, during which an ice sheet covered the whole Southern Uplands, and moved across the Area, rounding off hills, and scouring out valleys. As it advanced, fragments were forced from the solid rock, ground up and transported gradually eastwards. When the ice melted, this material was deposited as a mantle of varying thickness; its composition depending on the types of parent rock over which the ice had passed, and on its degree of sorting and manner of deposition.

196. In the last stages of ice retreat, glaciers were left in the valleys, their melt waters carrying away great quantities of debris, to be partially sorted and deposited as gravel, sand and silt. In more recent times, the rivers have continued to carry away weathered debris, and to deposit it as alluvium, fine sands and silts across their flood plains.

##### Solid Geology

197. Solid Geology is concerned with the age, manner of deposition, composition, structure and distribution of the consolidated rocks which form the Earth's crust. Ordovician and Silurian rocks, consisting mainly of greywackes and shales, occupy that major part of the Area which lies west of a line drawn through Lauder and St. Boswells, and extending southwards. Their hardness and varying resistance to erosion has produced a characteristic 'corrugated' topography in the hills round Hawick.

198. Rocks of the Upper Old Red Sandstone Age, consisting mainly of sandstones and greywackes, underlie most of the eastern part of the Area. They are in general much softer, and thus more vulnerable to weathering than the previous group, a quality which has contributed to the formation of a much gentler type of relief, and many have very distinctive reddish colours.

199. The distribution of these rocks in the Area formed during the Carboniferous Age is somewhat erratic. They consist of sediments and extrusive and intrusive lavas. The sediments are calciferous sandstones, accounting for a relatively small proportion of the Area south and east of Jedburgh. The lavas occur in two forms, as extensive sheets in the Makerstoun, Smalholm, Nenthorn area, and as scattered rocky outcrops and volcanic plugs throughout the Area from Earlestone to Bonchester.

## Drift Geology

200. Drift geology is primarily concerned with those minerals which overlie the solid rock and are either derived from them *in situ* by shattering and weathering, or have been transported from parent rocks elsewhere by wind, water or ice. This material can be regarded as the intermediate stage in the evolution of soils from solid rock.

201. Most of the Area is covered by a layer of glacial till or boulder clay, with alluvium, sands and gravels, and rocky scree on the remainder. The boulder clay is derived from the rocks of the three main Ages, and has been deposited either in a relatively pure form (Silurian, or Old Red Sandstone) or as a mixture (Silurian-Old Red Sandstone, or Carboniferous and Old Red Sandstone). It varies in depth and texture with the altitude and degree of slope on which it was deposited. On high ground and steep slopes it tends to be thin (seldom more than four feet thick), with a loamy texture and a high stone content.

202. The main deposit is in the valleys and at lower altitudes where it forms a thick 'till plain' of relatively gentle slopes and with a more clayey texture than elsewhere. The sand and gravel deposits occur along most of the major river valleys, and are often overlaid by extensive beds of alluvium. On those areas which are free of glacial, river, or plant deposits, the parent rocks have disintegrated under the action of the weather, forming scree and skeletal soils.

## Relief and Natural Drainage

203. The relief of an area may be analysed and expressed in terms of the characteristics of its slopes; these include their pattern of distribution, their dimensions, and the degree and direction of slope. The various combinations of these factors produce characteristic types of topography, and, when associated with vegetation, distinctive types of scenery.

### Distribution

204. The Survey Area may be crudely described as an undulating plain, with its centre midway between St. Boswells and Ancrum, open to the east, and contained by an arc of hills which are dissected by a number of radial steep sided flat-bottomed valleys; and a very hilly western sector, extending beyond Peebles, and rising to over 2,400 ft. at Dun Rig. The summits around the arc include Black Law (1,100 ft.), Rubers Law (1,400 ft.), Bell Hill (1,000 ft.), the Eldons (1,300 ft.) and Brotherton Hill (900 ft.), while the valleys include those of the Leader, Gala Water, Tweed, Etrick, Ale, Teviot, Rule and Jed.

### Dimension

205. Size and scale, when applied to slopes, are both relative terms which are used to describe or compare different areas. Border slopes are relatively small in scale, a quality which, when combined with their gentleness, produces a landscape in which the human scale is significant.

206. There is a predominance of large, moderately steep slopes in the west of the Area from Galashiels to Peebles, and of large level to gentle slopes east of St. Boswells. A mixture of size and degree of slope in the rest of the Area, especially when containing small isolated erratic areas of sharp relief, results in a very varied 'Border' landscape.

### Degree

207. Six grades were selected with which to analyse slopes in the Area, and to indicate their suitability for different types of development; level (1:20 and flatter), gentle (1:20-1:12), moderate (1:12-1:8), moderately steep (1:8-1:6), steep (1:6-1:4), and very steep (1:4 and steeper).

208. The pattern of distribution shows that a large proportion of the slopes are either 'steep' or comparatively level. The steep slopes, with the exception of isolated igneous intrusions, are concentrated in the Gala Uplands and the Etrick Forest; and along the river valleys of the upper Ale, the upper Teviot down to Hawick, the Rule and the Jed. Comparatively level ground usually occurs as large areas, especially south and east of St. Boswells, and along the floors of most of the river valleys.

### Direction

209. The orientation of all slopes with a gradient steeper than one in eight was assessed for the major part of the Survey Area. A feature is the predominance of south-east and north-west facing slopes. These include the corrugations in the Silurian rocks near Hawick, and the Old Red Sandstone formation west of Jedburgh. The north-east direction of ice movement across the Area must have contributed towards this pattern. There are few north and south facing slopes: their obvious disparity is well illustrated at Melrose, where Gattonside enjoys a more benign local climate than the opposite side of the valley.

### Relief Types

210. It is possible to distinguish five quite characteristic types of slope area; undulating, intermediate, hilly, valley, and sharp local. These types were selected to describe in a more general way the preceding very detailed slope studies, and to prepare the way for an analysis of Border landscape and scenery.

*Undulating:* This type is composed of gentle to moderate slopes of medium to large extent, stretching from St. Boswells towards Smalholm, Ancrum and Lilliesleaf.

*Intermediate:* Slopes in this type vary from level to moderately steep, and are in smaller areas of uniform character than the previous type. They are found in an intermittent band between the undulating plain and the arc of hills from Brotherton Hill round to Peniel Hough.

*Hilly:* These areas are composed mainly of large moderate to very steep slopes. They form the outer edge of the contained plain and extend into the Lammermuir, Etrick Forest and Cheviot Hills.

**Valley:** Border valleys exert a unifying influence on the landscape by running through and between the other types. The main river valleys usually have a gently inclined flood plain and moderate to very steep sides.

**Sharp Local:** A major component of the landscape, this type has large moderate to very steep slopes rising to isolated summits. They are all volcanic intrusions and include the Eildons, Minto Hills, Rubers Law, and Pencil Hough.

## Climate

211. Weather shares with geology and relief the distinction of being a critical factor in the evolution and maintenance of natural environments and habitats, and is probably the most significant factor in the formation of soils, and hence of vegetation, and the biological populations which they support. The climate of the Central Borders is roughly similar to that of most of eastern Scotland and north eastern England, with minor differences in local climate due to specific topographical features.

### Wind

212. There are no wind recording stations in the Area, and little precise data is available. The prevailing winds are from the west and south-west, and those valleys with a similar orientation are affected by wind funneling. During the spring and early summer, easterly winds may bring hail in from the North Sea, while in winter northerly winds bring snow, especially to the Lammermoors.

213. In general, the hills surrounding the Tweed basin modify both wind and precipitation and it is significant that, while on average the lowland mainland areas experience about ten gales each year, the unprotected coastal areas average twice as many. Wind duration and intensity increase with altitude, so that much land above 700 ft. O.D. suffers from exposure.

### Rainfall

214. The average annual rainfall in the Area is about 32 inches; St. Boswells at 260 ft. O.D. has 28.02 inches; Galashiels at 416 ft. O.D. has 31.75 inches; and Selkirk at 670 ft. O.D. has 34.79 inches. August and October tend to be the wettest months, each with about 10% of the annual precipitation; April is the driest with about 5.8%. Like wind, rainfall tends to increase with altitude, most areas above 1,000 ft. O.D. having over 50 inches per annum.

### Snow

215. No distinction is made in the annual rates of precipitation between rain and snow, and very few records are available. Snowfall in the Borders can be heavy, and is usually associated with winds from the north-east quarter. Statistics for Bowhill, near Selkirk, at 600 ft. O.D. show its annual variability; the winter of 1956-57 had ten snow lying days, while that of 1962-63 had eighty-four. Snow lies longer on north slopes, at higher altitudes, and in those areas where drifting occurs.

### Sunshine

216. Topography and mists can have quite a significant influence on local sunshine records, deep valleys and north facing slopes receiving less due to overshadowing; the prevalence of winter mists and fogs lying in the valleys also considerably reduces their sunlight. The mean daily duration for the year for Marchmont in Berwickshire is 3.48 hours, which is fairly typical of the eastern part of the country.

### Temperature

217. Temperature is no exception to the effect of altitude, and tends to drop at a lapse rate of 1°F per three hundred foot rise; the average annual daily mean for Marchmont at 498 ft. O.D. is 46.7°F; Selkirk at 670 ft. O.D. is 46.1°F; and at Blythburgh, Peeblesshire, at 830 ft. O.D. it is 45.3°F. This effect can be reversed, when cold air drains off the hills at night into the valleys, and when mist and shadow prevent sunshine from warming lower areas.

218. What is of more significance, as a measure of environmental suitability, is the length of the plant growing season. This is defined as the number of days per year when the daily mean temperature exceeds 42°F. Combined with the factors of soil and slope it very precisely determines the type of agriculture which is possible in any area. The comparable figures for the Area are: Kelso at 193 ft. O.D. has 219 days, Marchmont at 498 ft. O.D. has 208 days, the Gala Uplands at 800 ft. O.D. have 193 days, and the Lammermoors at 1,400 ft. O.D. have 175 days.

## Soils

219. The study of soils is fundamental to an appreciation of the natural resources of the Area, and in particular to that of agriculture, the major land user.

220. The Macaulay Institute for Soil Research working on a long-term programme to collect data on a national scale, have prepared memoirs on the soils in the Survey Area, and these have been extensively used in making the regional assessment.

221. Soils are either derived directly from the underlying parent rock, or from material which has been transported from elsewhere. Climate is probably the critical factor in this process, and in combination with topography, and the length of time within which certain cyclical and irreversible processes take place, leads to the evolution of a great many soil types, each with particular characteristics of drainage, depth, texture and fertility. Within the Survey Area over forty different soils have been identified and their distribution plotted. They can be divided broadly into eight major soil types: Brown Forest Soils (low base status); Brown Forest Soils (gleyed B and C horizons); Non-Calcareous Gleys; Peaty Gleys; Peaty Podzols; Skeletal Soils; Alluvium; Peat.

222. From an agricultural point of view most of the areas of greatest capability occur on

brown forest soils. They are derived from sandy and loamy soils mainly from Old Red Sandstone origin, and occasionally on Silurian and Carboniferous soils. They have developed on gentle to moderate slopes, in areas with an average annual rainfall of about thirty inches or less, and generally at altitudes below 700 ft. O.D. Where they do occur at higher altitudes, it is only on much steeper slopes with good drainage.

#### **Brown Forest Soils (low base status)**

223. This type occurs on those hills with a coarser texture and is thus freely drained. It covers much of the undulating plain and lower gentle slopes round Hawick, Jedburgh, Ancrum, Roxburgh, Smalholm and the eastern side of Lauderdale.

#### **Brown Forest Soils (gleyed B and C horizons)**

224. This type is usually of medium to high base status, and near neutral reaction; and has developed on poorer materials of a finer texture than the previous type, but in similar climatic and topographic conditions. It is found round Minto, St. Boswells, on the Silurian hills on the west side of Lauderdale, and on the very fertile farmlands of Lower Tweeddale in the Kelso area.

#### **Non Calcareous Gleys**

225. Most of the non-calcareous gleys occur on clayey till derived from Silurian sediments. They cover a large part of the area between Hawick and Galashiels, usually on gently sloping sites between 400 and 1,000 ft. O.D. Having such a fine texture, their natural drainage properties are poor.

#### **Peaty Gleys**

226. Peaty gleys generally occur in areas with a relatively high rainfall of over forty inches per annum, and on flat to gentle slopes. In the Area they are mostly derived from Silurian hills at higher altitudes between 600 and 1,000 ft. O.D. and have natural drainage properties in the poor to very poor classes.

#### **Peaty Podzols and Iron Podzols**

227. Soils within these categories occur on both Silurian and Old Red Sandstone deposits, generally above 1,000 ft. O.D. They are generally well drained, but higher rainfall and lower mean temperatures have resulted in the surface accumulation of partially decomposed plant litter and acid soil conditions.

#### **Skeletal Soils**

228. On very steep slopes, areas of erosion and severe exposure, the development of soil may be drastically retarded. In such areas, soils with a stone content of 80-90% may be found, for example, on the Eildons, Black Hill, and Rubers Law.

#### **Alluvium**

229. Alluvial plains and terraces have developed along all the floors of the river valleys

from the sands and silts brought down by floods. Some of these deposits are still accumulating, while others are now elevated above the river level and are relatively stable. Extensive areas occur on the Etrick at Selkirk, on the Tweed between Peebles and Innerleithen, at Melrose, Dryburgh and Rutherford, and on the Teviot from Midshiels to Crailing.

#### **Peat**

230. There are no extensive areas of deep peat within the Area, but small isolated deposits of both hill and basin peat do occur, for example near Dod Law, in the soil complex areas west of Hawick, and as a constituent of peat alluvium complexes.

### **Land Capability for Agriculture**

231. The Macaulay Institute for Soil Research have prepared an assessment of the suitability for agricultural purposes of about four hundred square miles of the Survey Area. Seven capability classes are distinguished, in which the land is classified according to the number and degree of limitations which influence agriculture practices and crop growth, and Map No. 8 has been prepared which shows their distribution.

#### **Land Capability Class Descriptions**

232. The following descriptions, which are the foundation of the capability classification, are those of Mackney and Bibby (1967).

##### *Class 1: Land with very minor or no physical limitations to use*

233. Soils are usually well drained, deep loams, sandy loams, related humic variants or peat, with good reserves of moisture, or with suitable access for roots to ground water; they are either well supplied with plant nutrients or responsive to fertilisers. These soils occur on level or gently sloping sites, and agricultural use is not significantly impaired by any climatic disadvantage or normal hazard. A wide range of crops can be grown and yields are good with moderate inputs of fertiliser.

##### *Class 2: Land with some limitations that reduce the choice of crops and interfere with cultivation*

234. Soils provide less than ideal rooting and cultivation conditions due to instability of tilth, stoniness, or shallowness: these soils occur on level to moderately sloping sites, with only minor climatic disadvantages which in general do not affect the choice of crops but may reduce yield. Land may be affected by temporary wetness. A wide range of crops can be grown though arable root crops may not be ideal choices because of hazards, particularly at harvest time.

##### *Class 3: Land with moderately severe limitations which restrict the choice of crops and/or demand careful management*

235. Soil limitations are generally not severe, but they combine with gradient, wetness and/or climatic disadvantages to restrict the choice of crops, timing of cultivation, and level of yield.

Wetness is a severe continuing limitation even when remedial drainage has been installed; gradients range from level to moderately steeply sloping. Cropping is restricted in the main to grass, cereal and forage crops, and, while good yields are possible, hazards are more difficult to avoid.

*Class 4: Land with very severe limitations that restrict the choice of crops and/or require very careful management practices*

236. Shallowness, excessive stoniness or low available water capacity are soil limitations which are often associated with steep gradients, creating problems in management or introducing an erosion hazard where ploughing is a prelude to pasture improvement. Wetness may not be effectively remedied due to level terrain, periodic flooding, or the need for a comprehensive regional scheme, and in addition this defect may be aggravated by soil limitations such as stoniness. Climatic disadvantages combine with other limitations to restrict the choice and yield of crops and increase hazards.

237. Management difficulties, particularly due to wetness, gradient and climate, restrict cropping mainly to grass with cereals and forage crops as possible alternatives over limited acreages when the increased hazards can be accepted.

*Class 5: Land with such severe limitations that its use is restricted to pasture, forestry or recreation*

238. Climate or gradient or both can be of overriding significance or may, in combination with wetness or soil limitations, affect land capability. Excessive rainfall, exposure and a restricted growing season prohibit arable cropping, though mechanical improvements are feasible. Land with steep gradients below about 1,000 feet may have high potential for forestry. Shallowness and excessive stoniness may be additional limitations to climate or wetness on gentle to moderate slopes. Level sites or very gentle slopes in the lowlands with no climatic disadvantages may be subject to flooding and extremely difficult to remedy; or, alternatively in the uplands, may have in addition to wetness, severe climatic disadvantages. Such land may have a wide range of capability for forestry and many possible recreational assets.

*Class 6: Land with very severe limitations which restrict use to rough grazing, forestry and recreation*

239. Climatic disadvantages are mainly expressed in upland areas through excessive rainfall, severe exposure, and a restricted growing season, but are also linked with soil and wetness limitations. Land with very steep gradients, associated with very shallow, excessively stony and droughty soils, which reduces its value for forestry both in lowland and upland areas, is included in this category. On level or gently sloping upland sites wetness is closely correlated with peat or with peaty or humose flush soils. Mechanised pasture improvement is not feasible and rough grazing can vary from upland pasture to estuarine marshlands. There is a wide range of capability for forest crops and recreation.

*Class 7: Land with extremely severe limitations that cannot be rectified*

240. Soil limitations are mainly excessive shallowness and an abundance of rock outcrops or unvegetated scree. Climatic disadvantages, mainly of exposure, protracted snow cover, and a short growing season, preclude forestry though a poor type of rough grazing may be available for a few months. Land in this category will include exposed areas above about 2,000 feet, bare rock outcrops and scree, sandy and pebbly heathes and untreated waste tips of various types, some with elements toxic to plants.

## Agriculture

241. The potential for vegetation on any area, and hence for crops, is largely dependent on the prevailing soil and local climatic conditions, which in turn result from the nature of the parent rocks, the topography and the general climatic regime. The potential for agriculture on any area must also include economic considerations, farming techniques and the skill of farmers and others to modify adverse physical conditions and improve even favourable areas. The major methods used to alter soil conditions are cultivation, drainage, the addition of organic materials, inorganic fertilisers and lime. The climatic conditions may be modifiable within certain limits by tree planting, if soil conditions are favourable.

242. Agriculture in the Area conveniently may be divided on an altitudinal basis into hill farms, upland farms and low ground farms.

### Hill Farms

243. Hill farms are mainly devoted to the raising of sheep and cattle for lowland fattening, and are found on the soils of the peaty gleyed and peaty podzol types, at altitudes above 700 ft. O.D., to over 2,000 ft. O.D. Depending on the soils and the rainfall (which may be 30 to 40 inches per annum), the vegetation varies from cotton grass and sphagnum on the wet areas to heather and moor grasses on the drier. These farms extend throughout the arc of hills enclosing the Tweed plain, and occupy most of the land west of Hawick, Selkirk and Galashiels.

### Upland Farms

244. The upland farms occupy the next zone below the hill farms, from 700 ft. O.D. down to about 400 ft. O.D., on the brown forest and non-calcareous gleyed soils. The ratio of pasture land to arable depends to a large extent on the soil type, permanent pasture being predominant on the wetter gleyed soils.

245. Livestock breeding and rearing is the principal activity, with the arable land being used for the production of winter feed, and the rotation of pasture. These farms occur in Lauderdale, the Gala Uplands and the lower parts of the Cheviots.

### Low Ground Farms

246. The low ground farms occupy the remainder of the Area, below 400 ft. O.D. on

the clayey soils of Lower Tweeddale, and some areas at higher altitudes with favourable soil slope and aspect. They have an annual mean rainfall of less than thirty inches. Comprising some of the most fertile farms in Scotland, they are largely devoted to short-term grass leys, cereals, potatoes and turnips, with very little permanent pasture. They extend eastwards from Greenlaw, Smallholm and Melrose, and occupy much of the Teviot valley down stream from Denholm.

## Woodland

247. Woodland accounts for about five per cent of the Survey Area, its pattern of distribution faithfully reflecting the limitations of soil, climate and slope which the terrain imposes on the primary land use, agriculture. It tends to occupy those areas which are less suitable for economic agriculture, and may be broadly divided into four main types: natural, amenity, shelter and economic.

### Natural

248. This type occurs spontaneously on land which is not cultivated, grazed or regularly cut or burnt, or develops when planted woodland gradually returns to its natural state. It is found along the banks of rivers, steep uncultivated slopes, on thin soils, railway embankments, areas of marsh and those liable to flood. It is composed almost entirely of indigenous and naturalised species, beech, elm, oak, birch, alder, willow, etc. Several Sites of Special Scientific Interest are included in this category, for example Brockhill and Henderland Bank.

### Amenity

249. This and the succeeding types of woodland are planted for specific uses. This type is associated with the large estates and country houses throughout the Area, of which Roxburghe and Mellerstain are examples. They were planted and retained largely for aesthetic reasons but also for seclusion, game, the improvement of local climate and timber production. They are spread fairly evenly throughout the lower and more clement parts of the Area, and often include exotic species and the most ornate native cultivars.

### Shelter

250. Although designed and planted from strictly utilitarian motives, this type has a pronounced influence on scenery. It occurs either as strips or clumps of woodland and may range from single lines of trees to substantial areas, and from monoculture of conifers to mixtures of hard and soft woods. The general distribution agrees with that of the upland and low ground farms between 700 ft. and 300 ft. O.D.

### Economic

251. Economic woodland, primarily designed for timber production, is now competing for land with hill farming, and even with upland

farms on areas of poor soils and adverse climate. At lower levels commercial woodland is restricted to mixed bottom lands and steep slopes which are difficult to farm, or to those areas round the country houses where the financial advantages accruing from their growth complement their natural beauty. The largest areas are those of Glentworth, Cardrona, Ellbank and Traquair, and Yair Hill Forest, all on the main Tweed valley between Peebles and the confluence of the Tweed and Etrick.

## Landscape Types

252. The whole Border environment is one of extreme complexity engendered by its primary geological structure, geographic situation and subsequent historic, physical and social development; and although the evaluation of the landscape has been as objective as possible it has not been done cynically, or as Wilde would have said, "by those who know the price of everything and the value of nothing".

253. A general description of a complicated area such as the Central Borders may be achieved by a three stage process of analysis, selection and synthesis. The first determines within certain prescribed limits the physical characteristics; the second selects those factors which appear to be critical to particular needs; and the third recombines those factors into a simplified diagram. From the basic information which precedes this section, the following simplified factors were selected: 'Relief', expressed as Hilly, Hillocky, Undulating, Prominent and Valley; 'Fertility', expressed as Fertile, Less Fertile and Poor; Woodland; and Water. The various combinations of these factors result in a great many landscape types, of which the following are the most significant (see also Map No. 9).

### Undulating—wooded—fertile

254. This type, from an agricultural point of view, is probably the most productive and desirable. With little or no limitations it generally represents the scene of many an arable farmer's aspirations. Scenically, it is of the gentle undramatic variety, with long views to the encircling hills, and placid river scenes between St. Boswells and Makerston. The tree pattern includes shelterbelts, hedgerows and the policies of several superbly landscaped estates like Mellerstain, all combining to produce scenes from Arcadia.

255. It seems likely that, as agricultural technology proceeds, this type of landscape may be radically altered as fields become bigger and trees and hedgerows are removed.

### Hillocky—wooded—less fertile

256. Conforming to the restraints imposed by slope and climate, agriculture in this landscape is generally less productive, but of a more picturesque variety than the preceding type. Fields are smaller, and their varied pattern of pasture and arable, combined with variations in slope, and sudden changes in scene as corners are turned and inclines crested, probably makes



it one of the prototypes of popular Border landscape. Abbotsford and Bemersyde are in this type, both adding to their surroundings those intangible qualities of historic and romantic association.

#### *Hilly—treeless—poor*

257. By far the greatest part of the Survey Area falls within this category. This is the wilder landscape of moorland and hill sheep farming; agriculturally of long antecedents, but with an uncertain future, it is at present the less fortunate section of the farming community. The extensive system of drove roads throughout the hill area testifies to the extent and magnitude of the past sheep and cattle trade in this region; and the gradual reversion of arable fields to pasture, and pasture to moor indicates its decline.

258. Other factors of outstanding interest are the hill forts, earthworks and roads of Iron Age and Roman periods. They hold the germ of the potential which past cultures were able to exploit, and is now waiting to be re-discovered.

#### *Hilly—wooded—less fertile*

259. This is not an extensive type but it does indicate one of the directions of development which the previous type may follow. A salutary example is to be seen in the Peebles area south of Glentworth forest, where the shelterbelt and woodland pattern has been combined with agriculture to extend more productive farming to the thousand foot zone. In association with the next type, this pattern of land use could transform large tracts.

#### *Hilly—wooded—poor*

260. The forests of Glentworth and Cardrona exemplify the more extreme variation of this type; large areas of coniferous woodland, block planted and with an even aged structure of tree growth. Two further types have a strong influence on the local climate and scenery; the isolated block, planted primarily for shelter to stock, and 'natural' which tends to be restricted to ravines, stream sides and areas not subjected to grazing or burning.

261. The modern forest type has aroused considerable controversy over the last fifty years or so, the various protagonists evoking economic, ecological, emotive and aesthetic arguments in

favour of their retention, removal or modification. At present the modifying influences appear to be in the ascendancy, as mixed planting and transitional zones ameliorate edges, and a more tolerant attitude to the public has opened up much of the Forestry Commission land for recreational use.

#### *Valleys—wooded and treeless—with water*

262. One of the most obvious landscape types influencing social and economic history and scenery is the river valley. Like arteries they have carried the life blood of the Borders in fluctuating rhythms since the hill routes were abandoned in favour of the coach roads. Important too because today it is from them that the majority of people, either as visitors or inhabitants, see the landscape, and within which most of the settlements are sited. St. Boswells is the major exception to this rule, and along with Kelso, which was outside the Survey Area, experiences a different set of physical and environmental influences.

263. It is along the improved communication systems through the valleys that increased pressures from tourist and recreating visitors will be felt, and where the maximum planning will be needed.

#### *Prominent Areas*

264. The Eildon Hills and other prominent landmarks have an irresistible fascination to people, both as objects to look at or from. This peculiarity, while sometimes permitted, is not always possible if the points of access are not known.

#### *Evaluation of the Countryside*

265. The survey of the physical resources was principally based on land form, climate and soils. This led, in the case of agriculture, to an evaluation which resulted in six classes of 'capability' for crop production; and was based on criteria which included drainage, slope, soil depth, texture, etc.

266. In the case of 'amenity' no such single set of criteria is likely to satisfy the aesthetic sensibilities of everybody. Difficult to identify, and possibly impossible to quantify, 'amenity' has become the ubiquitous catchword with which to describe certain satisfying qualities of a place. Many of these qualities, as seen and appreciated

Melross from the Eildon Hills



by certain social and cultural groups, are tangible, like the presence of trees and water; or are intangible, like the absence of eyesores or other incompatible objects; or include subjective qualities like peace, silence, solitude and privacy.

267. By contemporary standards of our culture, based as they are on many influences, including Eighteenth Century 'Picturesque', Nineteenth Century Romantic Revival, and Twentieth Century scenic postcards, the Area is particularly rich in those ingredients which constitute scenic beauty; so rich in fact that few areas would fail to qualify. In order to discriminate between the various scenic types and physical areas in a manner which would be of some significance in the selection and rejection of sites for development, the following criteria were adopted to define 'amenity' areas; with the exception of the Eldon Hills, the areas would be generally below 700 feet O.D.; areas in which water and trees were predominant factors; areas particularly vulnerable to damage because of the nature of the ground or vegetation, or ease of access from roads and towns; areas with improvement potential, or which gave the amenity plan coherence.

268. Concurrent with these processes of evaluation and assessment, investigations were made of current habits and trends in recreation and tourism. Crudely stated, they indicate that with improved roads, greater car ownership and more time and money, an increasing number of people will pour into and through the Area from north-east England, Edinburgh and Glasgow; and that many more visitors may be expected from the rest of the country, America and Europe. In addition, there is the present increasing demand from local inhabitants, and a future demand from the expanded population.

#### Where the People should go

269. In practical terms, 'concentration' means the provision of places and areas into which people are encouraged to go. These would besides of special historic interest, like the abbeys, historic houses, cultural or craft centres, or large areas like the forest parks. Their attractiveness may already have been realised, or may still be latent. In either case they should be provided with all the facilities necessary to absorb, cater for, and withstand large numbers of people and the resultant pressures and wear. In terms of access to open spaces, they imply a freedom of

movement, and both predetermined and adventitious activities. The policy of 'dispersal' is one which allows and encourages people to move through areas, along fixed lines of access, with restraints on lateral movement. In analogous terms, the concentration-dispersal idea for recreation is rather like the relationship between high pressure containers with a connecting network of low pressure systems.

#### Landscape Conservation

270. The current land use pattern, which in terms of tourist attraction is now one of the major assets of the Area, has evolved over the centuries by processes varying from self-conscious design to unconscious accident. The objectives behind this continuing process of improvement have varied from the strictly utilitarian to the wholly aesthetic; the aesthetic effects of the former sometimes being more satisfactory than those of the latter.

271. Today, as economic forces continue to alter the countryside, there is the possibility that in the future not only will it lose some of its attractiveness, but as a result, the social and financial implications on tourism and recreation could be profound. This is not a problem for which a few facile answers will suffice, but one which will involve many disciplines of analysts and designers in the years to come; the design of the countryside for multi-use is becoming just as radical and necessary as that of cities.

272. Trees constitute one of the more obvious factors which are often identified with 'amenity', a reality often rewarded by the imposition of a 'Tree Preservation Order'. Unfortunately, the preservation and planting of trees for non-utilitarian-economic purposes is not the subject of grant aid, although local authorities do have certain powers to plant on waste land. It is suggested that methods should be investigated whereby the planting of suitable trees for purely amenity purposes could be subsidised. A precedent has already been established for economic timber production for 'the public good'; should not uneconomic timber production be supported for a similar reason?

273. While the selection of species must always be left to the personal choice of the owner or occupier, it would be advisable to demonstrate and advertise the fact that certain trees are more suited to certain areas than others. In this way, the character of certain landscape

Abbotsford and the Twendbank Site



types could be reinforced, and enhanced. For example, beech, elm and ash are a feature of lowland landscape, while hirsch, pine and larch are found at higher elevations.

274. The form of planting, whether of hedgerow or parkland standards, avenues, belts or clumps could be the subject of further negotiation. The Area is so well provided with commercial tree nurseries that public ownership of them would have few advantages. The implementation of such a scheme would also entail a detailed landscape policy and plan, and possibly full-time professional advice on design and management.

### Semi-mature Tree Nursery

275. There will undoubtedly be a demand for trees of a reasonable size to create an immediate visual effect in areas of new development, and established areas in need of improvements. There are a number of methods whereby such a supply could be assured.

1. A single local authority, or consortium, could acquire suitable land, plants and machinery; and by direct labour 'grow on' a continuous supply of semi-mature trees.
2. An arrangement could be made with local estates to select and prepare a continuous supply of selected trees, which could then be lifted and planted by a contractor with tree lifting equipment.
3. A contract could be made with one, or more of the large commercial tree nurseries; or the Forestry Commission, to raise small nursery trees to semi-maturity.

276. The selection of species and varieties would be the subject of consultation with the expert arboricultural opinion already available and the local planning authorities. The Civic Trust and local amenity groups would undoubtedly be able to give invaluable advice on sites, and the best method of using trees to improve the environment, and to project a desirable image.

277. The sites would include urban areas, schools and institutions, historic and tourist areas, road improvements and new industrial estates where immediate effects are necessary.

## URBAN ANALYSIS

### Historic Growth

278. The earliest traces of settlement are of Iron Age origin, from about 500 B.C. The remains which can still be seen consist mainly of fortifications. At Torwoodlee there is also the footings of a broch tower, a type of fortification peculiar to Scotland. These early settlement sites occur mainly on high ground above the 300 foot contour, as do other Iron Age sites elsewhere.

279. There are interesting remains of the Roman period of occupation, and a long stretch of the Roman Road from Yorkshire via Newstead to the Lothians can be traced as far as the site of Trimontium, the fort at Newstead. Roman activity in this part of Britain lasted from the

middle of the first century A.D. to the end of the fourth century A.D., though Roman domination never appears to have been very complete north of Hadrian's Wall, and there were no permanent settlements. The feature of Roman development is that it bears little relationship to the settlement and communications patterns which have emerged since that time.

### Marker of the Roman Fort Trimontium

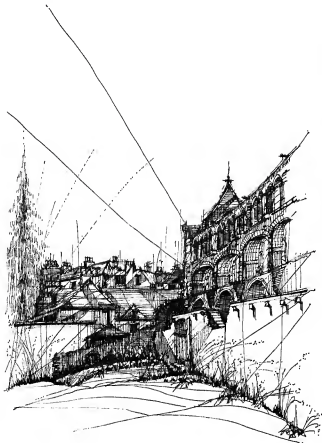


280. The major Roman encampment, Trimontium, was located at Newstead, and this was probably due to:

1. a crossing point of the Tweed in the vicinity;
2. the junction of two routes from the Antonine Wall, one being the well-established route from Cramond and Inveresk via South Aisle, and the other, not well-established, from the Clyde Valley via Lyne and Innerleithen;
3. its proximity to the Eldon Hill which was used as a Roman Signal Station.

281. The historical development becomes more significant from the time the four Abbays of Melrose, Jedburgh, Kelso and Dryburgh were founded by David I in the 12th century A.D. At this time, although the definition of the border between England and Scotland was by no means clear, there was less dispute and fighting which later put the Abbays in such a vulnerable position. The introduction of monasticism to Scotland came relatively late, but the prosperity which accompanied it is reflected in the remains of the fine Abbays. The monks farmed the fertile land of the Tweed Basin and reared sheep on the hills efficiently which enabled large quantities of wool and cattle hide to be exported from Berwick, then Scotland's major port. Gradually small towns grew up near the Abbays in connection with this agricultural function, and there was a start to all the major towns.

282. This peaceful pattern of existence was upset in later years by the wars between England and Scotland. The various valleys leading into the Tweed basin were like separate compartments, up and down which it was easy to move but between which movement was difficult, so there was little contact between the inhabitants of each plain. Thus rivalry developed and the fear of invasion by either raiders (cattle thieves) or the English was sufficient to discourage steady work. This fear was also reflected in the type of dwelling that was built. The farmhouses were built like small fortresses and the lairds' houses



were peel towers which acted as beacons to warn of an enemy's approach. Several examples of these remain, such as those at Durnick and Smalholm. Larger castles guarded the river crossings and the principal communication routes such as those at Roxburgh and Ferniehurst.

### The Textile Industries

283. Since sheep farming has for so long been important it is not surprising that a woollen industry developed. Originally woollens were spun and woven in the cottages, largely by the women. Later, about the sixteenth and seventeenth centuries, mills driven by water were introduced at first for the weaving processes, and the soft water was used in the washing and dyeing processes. Rough woollens were produced and then tartans, and later checks patterned on shepherd's plaids. The woollen twills or tweeds were misnamed tweeds by a London clerk, and the name has remained in use.

284. It is interesting to note from the earliest comprehensive Map of the Area, dated 1654, that the mills at that time were scattered along the lengths of the streams and were not concentrated in the main towns (at that time Kelso, Selkirk, Jedburgh and Peebles). However, by the time steam was replacing water as the main power source (early nineteenth century), there were several mills established in the towns, and this tendency towards concentration of the industry gave rise to the growth of Galashiels and Hawick into significant townships. At the same time the effects of strong competition were felt from the Yorkshire mills because of their advantage of proximity to coalfields and the growing port of Hull. In order to meet this competition, the mills turned to the production of high quality woollen goods such as tweeds, leaving the mass production of cheaper goods to the Yorkshire mills. The woollen industry's continued existence must therefore be largely due to the demand for high quality goods. Several mills started manufacturing knitwear garments and this industry has steadily expanded, being mainly centred on Hawick.

285. The tempo of the growth of the industry is related to the development of communication routes and settlements. The main road-building took place during the latter half of the eighteenth century, and the advent of the railways around 1850 saw the beginning of a very prosperous period. The peak of the woollen industry was reached at about the turn of this century. The pre-nineteenth century street patterns of the towns have remained largely unaltered despite fairly rapid expansion since 1850, and these areas now form the bulk of the central areas, except in the case of Galashiels, where development moved closer to the river once the principal dangers of flooding were overcome. Since the First World War, whilst physical expansion has continued, the actual population of the towns has steadily decreased. In the inter-war years the industry suffered along with the rest of economic activities in the northern parts of Britain, but since the war the production of textile goods has been sustained and increased. However, lack of

labour in particular is tending to restrict further growth and this has had its effect on the whole Area.

### Urban Structure

286. The Border textile towns all lie in narrow river valleys, with mills established in the narrow river plain, and town centres and residential areas along the lower slopes of the steeply rising valley sides. This topography has resulted in elongated built-up areas crossed longitudinally by the main valley roads, such as Galashiels which is crossed by the A7 trunk road.

287. The towns of Hawick, Galashiels, and Jedburgh have developed both sides of their valleys whilst Selkirk has only developed on one side. Peebles and Innerleithen, located at river junctions, have tended to spread along the two valley bottoms. Melrose, St. Boswells and Newtown St. Boswells differ from the other settlements in that they are not mill towns and their development has not been restricted by the topography of their sites.

288. Gross residential densities in the towns reflect this situation with Hawick and Galashiels, the most constricted, and Melrose enjoying the lowest, a fact which also confirms this town's image as a high-class residential community.

289. The main shopping centres at Hawick and Galashiels could easily accommodate an increase in retail floor area. The increasing use of the motor car, however, will demand the preservation of certain streets for pedestrian use only, whilst the restricted topography of the town centres may pose problems of access and car parking.

290. With the notable exception of Peebles, the burghs do not exploit the potentialities of their riverside locations to provide open space. As the obsolete mill sites are redeveloped, the opportunity should be taken, as has been proposed at Jedburgh, to open up the riverbanks for public use.

291. The restrictions on growth up the sides of the valleys have forced later housing developments to find sites on plateaux above the steepest slopes, or to straggle out along the lower slopes. An example of the former is at Burnfoot, Hawick, and the latter at Wester Langlee, Galashiels. These tendencies have resulted in somewhat isolated areas of housing beyond a comfortable walking distance from town centre facilities. Another negative aspect of this pattern of growth results from the main routes running through the towns, causing congestion and reducing environmental standards in the Central Areas. The reasons for locating industry in narrow valleys are no longer valid whilst the constricted locations of the mills prevent expansion. If the present industrial sites were to be completely redeveloped, the areas available would be unlikely to meet most modern industrial requirements for access and for car parking although they may be suitable for small manufacturing concerns or service industries.

292. The quality of the environment in many of the towns has been adversely affected by the uncontrolled growth of industry which is manifested in the central areas overshadowed by factories, and in the pall of smoke which often hangs over the towns. The industrial sites, which now lie derelict because of changing requirements, add to the general air of depression in parts of the towns.

## ENVIRONMENTAL ASSESSMENT AND TOWNSCAPE ANALYSIS

293. It was necessary to investigate the essential characteristics of the urban areas, in order to pinpoint opportunities for expansion and redevelopment, and the needs for limitation or conservation. Two studies were undertaken which defined the main townscape elements and assessed the quality of the residential environment. The results are shown for the urban areas of Hawick, Galashiels, Selkirk, Peebles, Jedburgh, Melrose, Innerleithen, Newtown St. Boswells and St. Boswells. The method used in these analyses attempted to be objective by defining certain principles and characteristics which should be achieved or distinguished.

294. The Townscape analysis investigated four particular aspects: (1) areas of special townscape value which included the plotting of street lines and focal spaces, listed buildings, groups of architectural significance, landmarks and viewpoints; (2) areas suitable for redevelopment; (3) the interaction of pedestrian and vehicular movement, especially major points of conflict, pedestrian walkways, parking and access problems; (4) limitations to expansion or breaks in continuity of development either visual or physical. All these factors could be either a positive asset to the town or be harmful and negative, and therefore have a direct influence on proposals for expansion or redevelopment.

295. The Environmental Assessment used six main categories to grade the quality of residential environment by means of a rating sheet: A

(Poor), B (Fair), C (Fair Plus), D (Good), E (Excellent), F (Dwellings in large grounds). Category C represents the minimum acceptable standard and should ensure an environment where it is safe and healthy to live and bring up children. Factors taken into account included type of road serving the dwellings, form of layout, parking or garage provision, surrounding land use and outlook, open space provision and visual quality (see rating sheet). It was thus possible to define areas of similar categories satisfying or not satisfying the basic requirements. Categories A and B in particular show where the main redevelopment and revitalisation opportunities lie in each town and could be the basis for more detailed studies.

### Hawick (see Map No. 10)

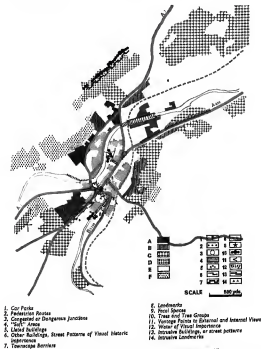
296. The Central Area of the town extends north onwards from the site of the original medieval settlement which is beside the bridge over the Slitrig Water near its confluence with the River Teviot. At the beginning of the nineteenth century mills were built on both sides of the river. A period of expansion started with the arrival of the railway, but much of the industrial building of this period is now approaching obsolescence. Although not as restricted topographically as Galashiels, the town soon occupied the lower slopes of both sides of the Teviot Valley and later housing developments were forced to find sites on plateaux above the valley. At Burnfoot this has led to an isolated housing estate which is beyond a comfortable walking distance from the Central Area.

297. There are some riverside recreational areas but the Town Centre does not realise the potential of the riverside location. Two main roads converge at the north eastern end and run through the centre of the town on the valley bottom. Communications between the two halves of the town are hampered by the presence of only two road bridges across the Teviot although there are a number of footbridges.

Assessment of Residential Environment: Rating Sheet

Category of Environment	Road Use	Layout	Parking	Outlook/ Surroundings	Open Space	Visual Quality
A	Main traffic route	Housing frontage on pavement and/or inadequate space about buildings	Kerb-side parking only	Absence of planting and/or with outlook to noxious land use	No garden or only drying green, and no access to open spaces	Fair use of materials, or unsympathetic or dull design or layout
B (between 'a' and 'c')						
C	Occasional light traffic route	Separation from road by front garden	Some garages and/or off-street parking	Some trees or planting. Outlook to compatible land use	Garden, or access to communal garden, open space or children's playground	Sympathetic use of materials or inoffensive in character
D (between 'c' and 'e')						
E	Residents only service road or old-de-ade	Pedestrian separation	Adequate, i.e. garaging and/or off-street parking	Good surrounding landscape. Pleasant approach and outlook	Private or communal garden, plus play area or park	Unified design and layout
F Dwellings in large grounds (i.e. over 1 acre)						

MAP 10. ENVIRONMENTAL ASSESSMENT AND TOWNSCAPE ANALYSIS FOR HAWICK



### The Residential Areas

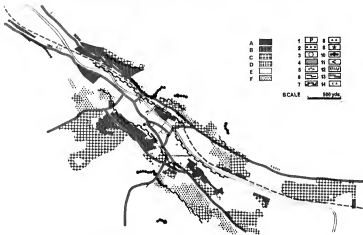
298. The oldest residential areas are situated around the town centre and on low ground, often adjacent to or surrounded by the mills. Most of these areas are either of A or B environmental categories. Little can be done to improve these areas short of redevelopment. Few residential areas seem to be affected by traffic nuisance since the main roads and routes of commercial vehicles pass through the Central Area.

299. Newer housing areas mainly built by the local authority are located at the edges of the town at the higher altitudes (in some cases over 500 ft. O.D.) along the valley at some distance from the centre. Views of the hills on either side are magnificent from most parts but the layouts seem to disregard this advantage. Roads are

often very steep and winding. Areas of C Category on both sides of the river represent the majority of housing, the largest portion being on the north side of the river. Layouts are generally of two storey dwellings along both sides of roads, having little special interest, or architectural quality, with open space usually where slopes are too steep for building.

300. There has been little private development since the Second War. Most private dwellings are detached and many lie in large grounds, and have therefore been allocated to category F. The largest areas are situated north of the river, stretching along the valley to the village of Wilton Dean. Although surrounding hillsides have plenty of tree cover, there are few trees and little landscaping in any of the residential areas.

# MAP 11. ENVIRONMENTAL ASSESSMENT AND TOWNSCAPE ANALYSIS FOR GALASHIELS



- |   |   |
|---|---|
| 1. Car Parks  | 8. Landmarks                                      |
| 2. Pedestrian Routes  | 9. Facial Spaces                                  |
| 3. Congested or Dangerous Junctions                               | 10. Trees and Tree Groups                         |
| 4. "SnC" Areas  | 11. Vantage Points to External and Internal Views |
| 5. Listed Buildings   | 12. Wider of Visual Importance                    |
| 6. Other Buildings, Street Features of Visual Historic Importance | 13. Intrusive Buildings, or street patterns       |
| 7. Townscape Barriers   | 14. Intrusive Landmarks                           |

A, B, C, D, E, F—Categories of Environment

## Areas of Special Townscape Value

301. There are three areas of special significance:

- (1) The area between the Silfrig and Dramlanrig Square containing streets of attractive character.
- (2) Teviot Crescent and Victoria Park.
- (3) Mansfield Road and Duke Street between the railway viaduct and the footbridge.

These areas could be greatly improved with careful infilling and landscaping.

## Architectural Quality

302. There are several listed buildings, mainly in the centre. A notable feature of the town is the absence of aerials on the buildings due to the existence of piped radio and television available to the whole town. It is the first service of its kind in Scotland. The older buildings have a strong and pleasing architectural unity largely because of their uniform facing materials which consist mainly of dark grey stone and slate. It is important to extend this feature and ensure that future development uses similar materials rather

than the coloured rendering and relatively bright tiles which have been employed in the newer areas. The visual discord created by the unsympathetic choice of colours for the otherwise good housing estate at Silberbuthall should be avoided in future.

## Traffic—Pedestrian Conflict

303. The High Street, while of no special architectural value, is a compact and convenient shopping centre, particularly if the present vehicular traffic volumes were reduced. While difficulty of providing rear services access for all the properties might preclude complete pedestrianisation, there may be scope for the removal of through traffic and parked cars. The complicated intersection at the south end is at present dangerous for both pedestrians and vehicles, and requires improvement.

## Townscape Barriers

304. Natural physical barriers to development in Hawick have long been broken and there are now no clearly defined visual limitations to further expansion. Extensive planting of tree



belts could create barriers at the extremities of the town and improve the setting. The rather sprawling appearance of the large housing estate at Wilton would particularly benefit from such treatment.

### **Gaishields (see Map No. 11)**

305. The town lies in the narrow valley of the Gala Water close to where it flows into the River Tweed. The structure of the town follows the general pattern; nineteenth century mills occupy the floor of the valley and the Town Centre and residential areas climb up the lower slopes of the hills on each side of the river. The town is traversed longitudinally by main roads and the Edinburgh-Hawick-Carlisle railway line. These roads subject the Central Area to traffic flows which adversely affect the general quality of the environment. This concentration of activities in a constricted valley has forced the town to spread out along the valley in the direction of Langlee House for adequate housing sites.

306. There are a number of small opportunities for redevelopment scattered about the Central Area, e.g. north and south of the High Street; north of Bank Street and Channel Street. The 'soft' areas lie behind substantial buildings along the street frontages, and this will make their redevelopment difficult. A further complication is that a number of new buildings—car showrooms, etc.—have been erected in these 'soft' areas. These will hinder the redevelopment of the area in any radical manner.

### **The Residential Areas**

307. It is in the older parts of the town that the poorest environment is found due to the cramped layouts of housing and industrial sites which are intermixed. The majority of the old properties are in poor condition which suggests that rehabilitation is not a practical solution. One of the worst of these areas is Magdala Terrace (the main road access to the town from the north-west). Since this street takes main through traffic and by-passing is hardly possible, the solution may be to demolish the whole of the south side of the street, which is old and in bad condition. Redevelopment here is difficult because of topographical conditions.

308. Not so bad is a large area to the south west. Rows of houses in Scott Street, Liasburn Street and others are monotonous and satisfy few environmental requirements. This is a large enough area for redevelopment to be comprehensively undertaken. In contrast, the housing areas at the south-east end of the town have a much better environment, achieved through better quality building and the existence of trees and other greenery.

309. The district known as the Old Town is in the process of being redeveloped, and one scheme already completed (Church Square) is an example of how good environment can be achieved. It incorporates a degree of pedestrian vehicle separation, and because of this it has been given the highest rating in the whole survey.

### **Areas of Special Townscape Value**

310. There are two focal spaces, Market Place and Cornhill Square, whose potential as an open space could be exploited by further regulation of car parking and the restrained use of surface treatments and landscaping. The existing development is so varied in both scale and height that restrictions on redevelopment in order to preserve the character would be irrelevant, although it would be a mistake to allow the scale to change radically with a number of large dwellings. There are few buildings of historical or architectural significance left in the Old Town, and there would seem to be little reason to maintain the existing street pattern in the area if redevelopment were to be tackled on a large scale. However, there are some unexpected views out of the town towards the surrounding tree-covered hills and south-east towards the Eildons which should be retained. From higher ground the church towers and several chimneys stand out as prominent landmarks.

### **Traffic—Pedestrian Conflict**

311. The quality of the environment for shopping in Channel Street would be substantially improved if the traffic could be removed. With the possibility of obtaining rear access to the shops this should not prove difficult, but re-routing the traffic will not be so easy. The new shopping development adjoining the Market Square demonstrates how this might be affected. There are some pedestrian bridges over the Gala Water which could link up with Channel Street to form the nucleus of a pedestrian system for the town centre.

### **Townscape Barriers**

312. The Central Area is clearly defined by strong physical barriers running parallel with the Gala Water. To the north, the ridge and railway line along the Ladhope Vale form a more effective barrier than the river which has numerous bridges and is only a minor obstacle to movement. The southern edge of the Central Area is effectively defined by the ridge along the Mill Lead. In contrast, there are no strong barriers east or west of the Central Area; the shops straggle out along Island Street for example.

### **Selkirk (see Map No. 12)**

313. Unlike most of the towns, the main part of Selkirk is situated on a hillside to one side of the river, the Etrick Water. The town owes its origin to the suitability of its site as a defensive position. Its industrial areas, dating from the mid-nineteenth century, lie along the river bank at the lower levels. The centre lies at the southern edge of an urban area which is fairly compact in form, at an altitude of over 500 ft. O.D. Residential areas surrounding the centre on three sides tend to be rather broken up due to the steep gradients, but larger, more homogeneous areas lie to the north-east. Views are magnificent towards well-wooded hills surrounding the town

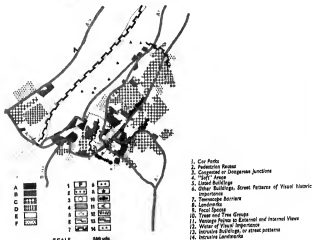
Galashiels Valley



Selkirk and the Etrick Water



# MAP 12. ENVIRONMENTAL ASSESSMENT AND TOWNSCAPE ANALYSIS FOR SELKIRK



A, B, C, D, E, F—Categories of Environment

and along the river valley. The major routes converge on the central street, one being the A7 trunk road.

314. The most extensive and significant area where redevelopment might be possible occurs on the west side of the High Street. At present several small builders yards, garages and waste areas are crowded behind the shopping frontages and accessible from several small alleys leading to Chapel Street which lies parallel to the High Street. There is, however, a scattering of more substantial buildings there. Other smaller areas for development lie at the lower levels off Mill Street at Muthag Street and Old Bridge Road. The area on the east side of the High Street is in the process of being redeveloped.

## The Residential Areas

315. These lie in a roughly triangular shape around the town centre, the major areas of housing being towards the north-east. Areas immediately adjacent to the centre are mainly in Category A and will shortly be demolished to extend the area at present being redeveloped. Most housing areas are rated Category C or better, and about the same proportion of Local Authority inter-war development exists as post the Second War development. There is very little private development.

316. There are a large number of small areas rated Category D, the most notable being (1) two

rows of dwellings, dated early 1900's, which exploit the steep gradients to obtain fine views and are connected by a network of pedestrian paths and served from cul-de-sac at the rear; (2) a compact new layout of old persons' homes around small greens, progressing up a fairly steep slope with outlooks both to the hills and to a large housing scheme; (3) a small layout still to be completed off the A707 road winding around the contours to the west of the centre, and similar in character to existing rows of houses stepping down the steep slopes to the river beyond the industrial areas. Another large Area of Category D houses across the river faces on to a series of large open spaces served by rear cul-de-sacs. However, the open spaces are not used as playspaces and trees planting would help to make them more attractive. Unlike many of the large areas of local authority housing elsewhere, the design of the area being redeveloped adjacent to the centre shows a conscious attempt to capture the scale of the vernacular of traditional building, by robust detailing and irregular spaces. This will be an attractive scheme. There are a few dwellings in Category F, located mostly on the periphery of the urban area. Very few housing areas are affected by traffic nuisance.

## Areas of Special Townscape Value

317. The Central Area has most significance and comprises a triangular pattern of main streets, of which the High Street containing most

of the shops, and Back Row have an attractive character. This is marked not so much by individual buildings of high architectural quality, but by the general street lines and linear spaces. The most attractive of these patterns is formed by Market Place leading through the High Street to the junction with Back Row, giving two focal spaces joined by a slightly curving narrow linear space. The northern end is the least satisfactory because building gaps prevent a coherent street frontage. In each focal space monuments provide a visual emphasis. There are few listed buildings fronting on to this space.

318. Infilling or redevelopment should follow the existing street lines and scale. If the main area ripe for redevelopment were exploited, rear access to existing shops might be obtained from Chapel Street.

319. There are many pedestrian paths circulating through the town providing short cuts (often steps) down the steep gradients where the road must make wide detours to obtain a reasonable route. This network should be exploited in all expansion and redevelopment schemes.

#### **Traffic—Pedestrian Conflict**

320. The proposed by-pass will alleviate the few points of traffic congestion caused by heavy vehicles. Generally there seemed little evidence to suggest that pedestrianisation of large sections of the High Street would be advantageous. Conditions in the Market Square itself for aesthetic as well as safety reasons could be improved by restricting parking still further in the centre, and removing the bus stand if possible to the car park. This area would also benefit from some landscaping and other facilities for shoppers, especially to provide protection from the weather.

#### **Townscape Barriers**

321. The Central Area occupies a high plateau location above the valley floor, and the very steep gradient on the west side forms several definite edges, one running along Chapel Street. Several tree groups are significant too from a distance, particularly along the edge of the Haining Park, along Scotts Place and the grounds of Bye Thorn House. These separate rather than contain development, but an important visual barrier is formed by the wooded valley of Shaw Burn which should continue to be the northern boundary of the town. Viewed from across the river the three church spires, the County Buildings, the TV mast and the Burgh Chamber tower provide vertical emphasis.

322. Although the River Etrick seems an important physical and visual barrier, it no longer completely contains the town now that the Philiphaugh scheme has been built. It would still seem undesirable to extend development here if other areas of reasonable gradients can be found nearer the centre.

#### **Peebles (see Map No. 13)**

323. Situated at the confluence of two rivers, the

Tweed and the Eddleston Water, the town appears to have originated as both a convenient crossing point and a good defensive position; the castle mound can still be seen in its advantageous position. The main route on which the town was built was east-west, today the A72 road from Galashiels to Glasgow. By the mid-eighteenth century development had taken place along the Edinburgh Road, whilst the widening of the Tweed Bridge in the early nineteenth century preceded the development of land south of the River Tweed.

324. Like the other Border Burghs the town enjoys views of the surrounding hills, but it differs from the others in that its growth has not been hampered by the proximity of difficult terrain. It is also exceptional in that, apart from one disused mill there are no industrial establishments on the bank of the River Tweed because factories have grouped around the Eddleston Water north of the Central Area and this provides the town with large areas of riverside open space.

#### **Residential Areas**

325. The two rivers divide the town into three areas:

- (1) North of the River Tweed, and east of Eddleston Water.
- (2) North of the River Tweed and west of Eddleston Water.
- (3) South of the River Tweed.

326. Area 1, which includes the commercial centre of the town, has most of its housing spread out along the Edinburgh road. Though traffic flows at present seem low, any large increase of industrial activity in the Area could create intolerable conditions for these dwellings. The block layout of the Local Authority housing in the Dalrath Crescent area is redeemed where the dwellings back on to the Eddleston Water.

327. The bulk of the housing has a satisfactory environment and is mainly located in Area 2. It all rates Category C with the exception of bands of development which either overlook mills or lie along Rosetta Road, which will become increasingly subject to traffic nuisance as the industrial site to the north of the town is developed. The ground rises west of Rosetta Road, and the housing there enjoys views of the wooded slopes of Ven Law on the opposite side of the Eddleston Valley. Where these houses adjoin the Golf Course, they have been rated as having a good environment (Category D).

328. The area of lower density housing set in well wooded landscape south of the River Tweed (Area 3) is notable for being one of the largest zones rated as good. There is a danger, however, that denser development using the same traditional house layout and with less lavish landscaping may lead to areas of drab housing. The latest development in the Glensax Road area rated as merely satisfactory.

#### **Areas of Special Townscape Value**

329. The river is a major visual asset, being the

central axis of a parkway running through the town. The most important areas which contribute to the continuity of this undeveloped belt are the large recreation ground west of Hay Lodge, Tweed Green, Old Green and Nisan's Haugh. Numerous trees lessen the intrusion of development which has occurred on the river banks.

330. In sharp contrast to this feature is the town centre set back from the river on higher ground and composed principally of High Street, Eastgate, and Northgate, which are richly urban in character. These streets are well proportioned and contain buildings of great variety and interest. They are dominated by the tower and spire of two churches at either end of the High Street.

mainly in the High Street. The scale, colour and texture of the urban spaces formed by the town's older buildings have created a pleasant architectural character. It is disappointing that new development has tended to disregard the elements of this character, and as a result detracts from the town's overall quality. Examples of this are the new post office in Eastgate and a new hotel extension overlooking Tweed Green.

332. The diurnal mill between the Castle Hill and the River Tweed constitutes the major eyescen. The buildings, together with a tall chimney, should be demolished as soon as possible. That part of Eddleston Water flowing through the town could be made very attractive with landscaping and the redevelopment of semi-detached buildings on the banks.

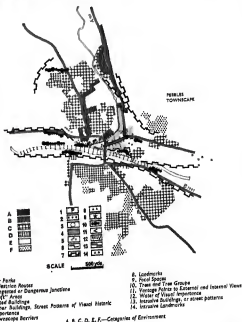
#### Architectural Quality

331. The town has several listed buildings.

#### Traffic—Pedestrian Conflict

333. At present traffic volumes are relatively

MAP 13. ENVIRONMENTAL ASSESSMENT AND TOWNSCAPE ANALYSIS FOR PEEBLES



slight and there is little serious conflict. However, the High Street could be more attractive as a shopping street if vehicular traffic could be reduced. The nature of backland development would make rear service access possible, but a more practical and economic solution would be to divert through traffic and private cars from the main streets. The car park on Old Town Green has created a dangerous junction at the north end of Cuddy Bridge, where three other roads converge.

### Townscape Barriers

334. A strong barrier to development can be defined to the north-east of the town at the foot of Ven Law. The landscape belt running through the town has made the definition of two internal barriers possible. Between these two barriers development should be restricted to that appropriate to a green 'wedge'. The barriers would be more clearly defined by such improvements as the removal of the disused mill.

### Peebles



### Jedburgh (see Map. No. 14)

335. Owing its origin to the easily defended hill overlooking the Jed valley, the town has grown away from the Castle Hill which remains in an isolated but dominant position. The urban areas are located on both sides of a fairly steep river valley which meanders through the town. The very compact Central Area is linear in form and contained by one of these river sweeps on its east side. The ruined Abbey is a notable and attractive feature and may be seen from most parts of the town, from the valley sides or through the narrow alleys leading off the main street. Most of the industrial areas adjoin the river, the largest being a derelict factory adjacent to the centre, whose shell and two tall chimneys are very dominant and are now being demolished. The busy trunk route A68 runs through the centre and skirts a large housing area. A number of heavy vehicles use this road, causing some nuisance to nearby houses. The local council has proposals to revitalize and redevelop a large part of the Central Area.

### The Residential Areas

336. The residential areas are not very compact, the largest districts being located east of the river. Most have been built since the first war by the local council and are adequate environmentally. One large estate to the south-east crowns the skyline rather unattractively, seen from lower down the valley. It is also isolated from the centre by steep gradients.

337. Older housing areas tended to be of environmental Category B except along Castle Gate Street just below the castle. This street is mainly two storey stone terraces of traditional character and has a great potential for upgrading, especially since its architectural quality has considerable charm. Many houses here are being physically improved at the present time.

338. Compared with many other Border towns, there are few large houses sited in their own grounds (Category F), and little development could be rated Category D. There seems to

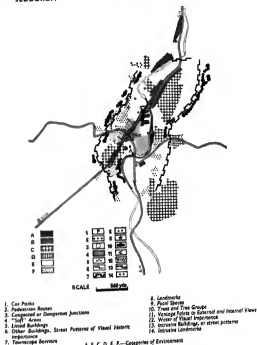
be little private development since the Second World War.

### Areas of Special Townscape Value

339. The report on the town by the Technical Working Party published in 1964 has paid considerable attention to the townscape quality of the town. Their proposals should realise the potential at present unexploited. The survey has produced nothing which would modify these proposals.

### Townscape Barriers

340. However, the report does not concern itself with areas beyond the town centre. Two factors have emerged which could influence the further development of Jedburgh. Firstly, the ridge lines of the slopes of the Jed valley, seen from the town, at present contain very little development. It is important to ensure that this characteristic is preserved because of the fine quality of views out of the town towards these



wooded slopes. Secondly, the lack of a natural physical boundary to the north has resulted in a sprawl along the A68 trunk road which is of poor visual character, particularly in comparison with the southern approach to the town, and therefore this sprawl should be checked.

#### Melrose (see Map No. 15)

341. This is an unusual town because its principal elements are not as closely linked as they are in most other old established settlements. The centre consists of a fine main street terminating in the Market Square, and is architecturally a complete and notable space. The three main housing areas are mostly of low density and separated from the centre by playing fields, a school, and the grounds of Melrose Abbey.

These features of the town give it a spacious feeling as a whole and give emphasis to the urban compactness of the centre.

#### The Residential Areas

342. There is little or no really poor environment here. There is a large proportion of housing with a Category D or F rating, although this is due to attractive sites and spacious layouts rather than inherent good planning and design.

#### Areas of Special Townscape Value

343. The proposals made by the Technical Working Party (1966) pay regard to the special features of the town, and the findings of the survey have produced nothing which would modify these proposals on Townscape grounds.



### Townscape Barriers

344. On a broader scale, however, there are certain features which could influence the future development of the town. Firstly the River Tweed provides a natural boundary to development, and should continue to be flanked by open space on both sides of the river to continue the attractive landscape 'corridor' provided by this river throughout the Borders.

345. Secondly, there are two barriers to development to the south of the town. One is the railway, and the other is the foot of the sloping ground further south which provides a backcloth to views out of the town centre. Development on this latter area should be restricted and remedial measures taken to reduce the visual intrusion of existing development on the ridge lines. There are no clearly defined barriers to the east or west of the town.

### Innerleithen

346. The town is dominated by the bare hills which at the confluence of the Rivers Tweed and Leithen rise steeply from the flat valley floor. Industry is concentrated along the River Leithen adjacent to the disused railway. The small Central Area is situated along the main Peebles-Galashiels road near where this crosses the River Leithen. The whole town is set back from the River Tweed.

347. Views of wooded slopes are a delightful feature of many Border towns but Innerleithen seems to be oppressed by the hills enclosing it. This feeling of depression is further reinforced by the rundown state of a large proportion of the buildings in the town.

### The Residential Areas

348. The largest area of housing, dating from 58

between the wars, is located in the south-east quadrant of the town. Although this was rated as having a satisfactory environment, an effort to relieve the bleakness and monotony of the layout by landscaping would be worthwhile. Most of the dwellings located along the A72 road were rated in category B, whilst there is a large area of housing south of that road which appears to be suitable for redevelopment. There is some more secluded housing which has a good environmental quality. The remainder of the housing straggles north along the Leithen valley and, where this dates from pre 1900 and faces directly on to the B703 road, the area was considered suitable for redevelopment. Other small pockets away from the road were rated as satisfactory.

### Townscope

349. There is little in the town of special value although the main street is quite pleasing. The traffic nuisance in this street will be removed by a town by-pass as proposed in the Peeblesshire Development Plan. This could provide the incentive for a face-lift which it badly needs.

### Newtown St. Boswells

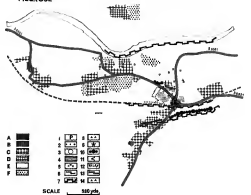
350. This is a small settlement built largely since the turn of the century, owing its existence to the large auction market situated on the opposite side of the railway to the main housing area. It is located on level ground astride the main regional traffic route, the A68 trunk road.

### The Residential Areas

351. Most of the housing has been rated fair (Category C) but the general environmental standard of the town is low. Improvements would be difficult without large scale investment because there is little building which is ripe for redevelopment, and both the railway and the A68



MAP 15. ENVIRONMENTAL ASSESSMENT AND TOWNSCAPE ANALYSIS FOR MELROSE



1. Car Parks
2. Pedestrian Routes
3. Congested or Dangerous Junctions
4. "Soft" Areas
5. Listed Buildings
6. Other Buildings, Street Patterns of Visual Historic Importance
7. Townscape Barriers

8. Landmarks
9. Forest Spaces
10. Trees and Tree Groups
11. Vantage Points to External and Internal Views
12. Water of Visual Importance
13. Intrusive Buildings, or street patterns
14. Intrusive Landmarks

A, B, C, D, E, F—Categories of Environment

trunk road divide the town and have a detrimental effect on adjacent development and the possibilities for pedestrian movement within the town.

### Townscape

352. There is practically nothing in this town to give it character or identity, except for one small group of houses in the old part near the River Tweed which have a pleasant scale of spatial enclosure. No barriers to development can be defined.

### St. Boswells

353. The village is an older settlement just over a mile from Newtown St. Boswells and about the same size. It is predominantly a linear development, but with a spacious green stretching for about a mile north-eastwards from the A68 trunk road along the B6404 road sited on level ground not far from the River Tweed.

### The Residential Areas

354. Since the First World War, expansion has taken place mainly to the south of the main street, and this has taken the form of the normal frontage layout. This area rated a Category C environmentally but contributes nothing to the town as a whole as it is architecturally unrelated to the older development and is not well related

to the community facilities. There has been very little private housing built since the first war. The best of the village therefore is around the green, and the older part contained in one street. It is unfortunate that this street is narrow and twisting, giving it a low environmental traffic capacity which is easily exceeded.

### Areas of Special Townscape Value

355. At the A68 end of the village there is a large green with pleasant looking houses surrounding it. This leads to a narrow street containing shops, a primary school and a bank, post office, etc., and further on there are some picturesque old cottages. This forms the 'original' settlement and it is of a pleasant, if not outstanding character, although tending to be cramped in parts. Generally speaking, there is little which is sufficiently worthy of preservation to prejudice expansion on a large scale. However, these areas of special value are sufficiently self-contained to withstand this type of change of urban scale.

### Further Studies

356. Further studies will be required before any detailed proposals are made for expansion or redevelopment. These should include more detailed townscape appraisals and environment studies to discover the full possibilities for revitalisation and improvement.

## SOCIAL SERVICES

### Education

#### Existing Facilities

357. The information for this section was provided by the Directors of Education in the Counties of Roxburgh, Selkirk and Peebles. Nearly all the educational facilities are provided under the State educational system. Apart from four Roman Catholic primary schools, at Galashiels, Hawick, Selkirk and Peebles, all other primary schools and all secondary schools are integrated.

358. Of the total of sixty-four state schools at the primary education level, a large number (mostly single teacher) are located in the rural areas, in addition to the normal provision in urban areas.

359. Secondary education is available at two levels, up to junior secondary level in the Counties of Roxburgh and Peebles, and up to senior secondary level in all three Counties. However, the reorganisation planned for secondary education in the near future will mean that all junior secondary departments will close and only comprehensive secondary schools will serve the whole Area located at Galashiels, Selkirk, Hawick, Peebles, Jedburgh and Kelso.

360. 'Further education' is available at Colleges in Galashiels and Hawick, at the Scottish Woolen Technical College, Galashiels (a Scottish Central Institution) and at Denholm (limited agricultural courses) all for day release students, plus some seventy-five full time places at the Scottish Woolen Technical College. Peeblesshire students travel to Galashiels or Edinburgh. Galashiels is thus a regional education centre. Students also travel outwith the Area to Edinburgh (especially to Napier College) and to the Universities.

361. For the educationally sub-normal children

there are special classes attached to primary schools at Burnfoot Hawick, Kelso, Burgh Galashiels and St. Ronan's Innerleithen. There are also special schools at Old Gala House Galashiels (occupational centre), Hawick (junior occupational centre) and Castlecraig Blyth Bridge (residential school for the physically handicapped). The last named takes pupils from all three counties plus Lanark, and Midlothian. Two other private special schools exist in Peeblesshire—Craigmore Peebles, run by Dr. Bernardo's Homes (residential for maladjusted children) and Garvald Home and School, Delphinton, West Linton (for children regarded as uneducable in special schools), run on Rudolf Steiner principles.

362. There are only two nursery schools in the Area which are private establishments, at Hawick and Galashiels.

363. Several independent schools have recently closed down in the Area, and only St. Mary's, Melrose (part residential), and the Gala Free School, Galashiels, now remain. A few private pupils from schools now closed attend schools outwith the Area, mainly in Edinburgh and at Glensalmond.

364. There is a school camp at Broomlies, West Linton, run by the Scottish National Camps Association, and two small outdoor studies centres at Scotch Kershope, Newcastleton, and Towford, Jedburgh. All are fully used by groups from within and without the Area, including the education authorities.

365. Adult evening classes, both vocational and recreational, are offered throughout the three Counties, generally held in school premises in the larger towns.

366. The following information on the existing educational facilities was collected in detail to ascertain how much of the proposed population increase could be accommodated in existing premises. The official capacity of a

Table No. 7  
Education Facilities at September 1966

	Selkirkshire	Roxburghshire	Peeblesshire	Total
(1) <i>Pupils on School Rolls:</i>				
primary*	2,061	4,503	1,316	7,880
secondary**	1,278	1,638	595	3,511
(2) <i>Official capacity of Schools:</i>				
primary	2,057	6,877	1,534	10,468
secondary	1,750	1,775	800	4,325
(3) <i>Pupils in Special Schools:</i>	7	45	55	107
(4) <i>Places at Further Education Institutions</i> (full time and day release)	1,175	300 approx.	—	1,375
(5) <i>Places prepared to be abandoned:</i>				
primary (official capacity)	305	105	—	310
junior secondary	—	175	105	280
(6) <i>Site areas of Primary and Secondary</i> <i>schools (including playing fields)***</i>				
Total acres	45 approx.	45 approx.	75 approx.	165

\*Including special classes attached, and independent schools.

\*\*Including junior secondary pupils.

\*\*\*Including special schools.

school is based on 40-45 pupils per class, for primary education and thirty pupils for secondary education, but in practice a much lower figure is both necessary and desirable. Table No. 7 summarises the position in the three Counties.

367. The main implications from the existing situation are as follows:

- (1) Most of the rural primary schools are of single teacher size and the largest proportion of these are found in Roxburghshire. Some of these schools are to be abandoned but, if the present rate of rural depopulation continues, more rural schools may be closed in the near future as part of the centralisation of educational facilities in Roxburghshire and Peeblesshire in particular.
- (2) The number of vacant places is misleadingly high because the Schools Code permits maximum classes of forty-five although the official capacity of schools shows that generally conditions are by no means overcrowded. In the larger urban areas, however, primary schools are more fully occupied, some nearly at capacity.
- (3) Except in Peebleshire the site areas of schools appear to be low, bearing in mind the School Building Regulations for Scotland. This is due to the use of rented Public Open Space, or shared playing fields with other authorities for outdoor activities, rather than a result of cramped site conditions. The towns are small and the distances travelled are therefore not great. But although this allows intensive use of urban open space in the existing locations, it denies casual use connected with extra mural school activities without some effort.
- (4) Although a large number of schools date from the last century, most have been extensively modernised or expanded recently.
- (5) The large number of rural schools indicates a complicated transportation network by school bus and car for many pupils due to the physical characteristics of the Area (long valleys with few cross routes). The closure of more rural schools will unavoidably tend to accentuate this problem.

368. The existing situation will obviously not remain static and there are commitments in all three Counties for expansions and new school buildings. The following schools are to be abandoned:

#### *Primary Schools*

St. Mary's, Hawick  
 St. Peter's, Galashiels (part) (but later to accommodate Occupation Centre)  
 Old Roman Catholic, Galashiels  
 Caddenfoot (possibly to be turned into Field Study Centre)  
 Megget (pupils to Yarrow)  
 Occupation Centre, Gala House, Galashiels (moved to St. Peter's see above)  
 Stobo (probably).

#### *Junior Secondary Schools*

Denholm (retained as primary only)  
 Melrose Grammar (retained as primary only)  
 Morebattle (retained as primary only)  
 Newtown St. Boswells (retained as primary only)  
 Broughton (retained as primary only)  
 St. Rozanna, Innerleithen (possibly retained as primary only, or for vocational courses and youth work).

#### **Development Proposals**

369. The section on Social Services in the Economic Report has defined in some detail the projections of the demand for both school places and teaching staff. There will be an increasing concentration of educational services in urban areas at all levels. It is anticipated that there will be no increase in the demand for additional Roman Catholic schools at primary level. Secondary education will have become comprehensive by 1970 and all existing junior secondary departments will have disappeared, although Jedburgh School will operate as a junior high school comprehensive. The projection of the demand for educational facilities must take into account the raising of the school leaving age in 1970, and the accelerating demand for further education. It has been assumed that, in the smaller settlements, the present facilities can cope with population changes up to 1980 either through routine improvements or present commitments for expansion. The projected educational facilities are only concerned therefore with the towns and areas where specific proposals for population expansion have been made. The recommendations for educational facilities at each of the four main educational levels are as follows:

#### *1. Pre-school*

370. In order to sustain the female activity rate in employment in particular, there will be a demand for day nurseries or creche units for pre-primary school age children. It is proposed that the provision of creche units be encouraged in industrial estates and shopping centres. Nursery classes should be attached to primary schools wherever possible.

#### *2. Primary Schools*

371. It is estimated that over 3,000 new primary places will be required for the expanded population. The Education Authorities are already committed to provide a large number of primary places in the near future as replacements to existing schools, except for Easter Langlee.

#### *New Schools: Kelso (2 stream)*

Hawick (2 stream)  
 Clovenfords (180 pupils)  
 Galashiels, Easter Langlee (2 stream)  
 Galashiels, Roman Catholic (180 pupils)  
 Galashiels, Occupational Centre (40 pupils)  
 Peebles (1 stream) (probably)

*Expansion:* Galashiels, Wester Langlee (to 2 stream)  
Galashiels, St Peters (replacement 1 stream as now)

372. There is some spare capacity in existing schools, and except in the larger urban areas, pupils in some town expansions proposed can be accommodated, taking into account the commitments above. However, in Galashiels and Hawick in particular the new development areas do not fit exactly within existing school catchments, and therefore new facilities must be proposed to allow reasonable walking distances for children of some 3/8 mile. The expansion of Tweedbank and the St. Boswells areas will require new schools. Proposals can therefore be made as follows:

*Proposals:* St. Boswells area (2 stream)  
Tweedbank (2 stream)  
Galashiels (Mossilee/Hollybush area) (2 stream)  
Hawick (Wilton area) (1 stream)  
Selkirk (Public School) (expansion to 2 stream size)  
Jedburgh (east of Allersley Park) (1 stream)

373. Educationally sub-normal children will continue to be catered for in special classes attached to existing primary schools, and in the existing special schools.

### 3. Secondary Schools

374. It is estimated that some 1,900 secondary places will be required for the expanded population. Where junior secondary departments have closed down, it is assumed that former pupils will travel to their nearest secondary education centre, as follows: Denholm to Hawick, Melrose and Newtown St. Boswells to a new school, Morebattle to Kelso, Broughton and Innerleithen to Peebles. There are already commitments for one new school and school expansions, as follows:

*Expansion:* Hawick (to 1,400 pupils)  
Kelso  
Jedburgh (to 350 pupils)  
Galashiels Academy (to 1,250 pupils)  
Peebles High (to 900 pupils)

375. All increases can be accommodated satisfactorily by existing and expanded schools except in the Galashiels and St. Boswells area. In order to create a pattern of similar sized secondary schools throughout the Area (except for Jedburgh), it is proposed that the Galashiels Academy should be expanded further to accommodate pupils from Tweedbank and other Burgh developments, and that the new secondary school already proposed should be expanded and relocated near St. Boswells to cater for the remaining population expansions in this area. To achieve this, some catchment areas may need to be adjusted.

*Proposals:* St. Boswells area (1,000 pupils)  
Galashiels Academy (expansion to 1,500 pupils)

### 4. Further Education

376. It is expected that there may be an increase of up to fifty per cent in the demand for further education facilities, arising from the combined effects of the population increase, the new Industrial Training Acts and acceleration in demand generally. This will create the need to expand courses in Engineering, Building Construction and Commerce, presently available at Galashiels, and may also stimulate new courses. There are already commitments for expansion of facilities as follows:

*Expansion:* Hawick, Henderson Technical College (to 220 students by 1970)  
Galashiels, Scottish Woollen Technical College (to 170 full-time students and 280 part-time students).

377. The site of Galashiels College of Further Education could allow for the expansion outlined above. Beyond 1980, there may be the demand for further education facilities at undergraduate level which might be catered for in a technological university and incorporate the Scottish Woollen College which offers courses at undergraduate level at present.

378. Large numbers of students will still be obliged to travel outwith the Area to Colleges of Education. If the chronic shortage of teachers persists, and to encourage more males and married women to enter the profession, it may be advantageous to introduce a College of Education by 1980, located in the St. Boswells area. Proposals can be outlined as follows:

*Proposals:* Galashiels, College of Further Education: Further expansion  
St. Boswells area: New College of Education.

379. There will also be a continued expansion of adult evening courses both of a recreational and vocational nature, mainly based on centres of secondary education.

### Social Services—Health

380. The Chapter on Health and Welfare Services produced by the Economics Department gives detailed projections for the various types of accommodation which will be required by 1980. The demand for staff in 1980 is also considered. This section will deal with existing facilities based on information supplied by the South-East Regional Hospital Board, and the physical planning implications as a result of the population increase.

### Existing Health Facilities

381. The Central Borders is at present served by a system of cottage hospitals and small, more specialised Units in the Burghs, with Peel Hospital, Clovenfords, serving as a district hospital, and Dingstone Hospital, Melrose, providing accommodation and treatment facilities for mental disorders. The hospitals are administered by two Boards of Management, one

covering Peel and all the smaller hospitals, the other, Dingleton Hospital.

### **Peel Hospital, Clovenfords (216 beds)**

382. Built as an Emergency Service Hospital during the Second World War, hence its relative isolation, the accommodation has been substantially improved since 1947. This hospital serves as the District General Hospital for the Counties of Roxburgh, Selkirk and part of Peebles and Berwick.

### **Dingleton Hospital, Melrose (418 beds)**

383. Serves the four Border Counties for mental disorders. Although it was built during the close of the last century considerable modernisation has taken place. This hospital is well located to take advantage of the new Galashiels-St. Boswells link road when this is built.

### **Cottage Hospitals**

Galashiels Hospital, Galashiels	(33 beds)
Cottage Hospital, Hawick	(31 beds)
Halg Maternity Hospital, Hawick	(14 beds)
Cottage Hospital, Selkirk	(18 beds)
Sister Margaret Cottage Hospital, Jedburgh	( 8 beds)
Peebles War Memorial Hospital, Peebles	(28 beds)

### **Geriatric Hospitals**

Knoswick Hospital, Galashiels	(31 beds)
Drumlanrig Hospital, Hawick	(48 beds)
County Hospital, Peebles	(20 beds)

### **Geriatric Assessment Unit**

Sanderson Hospital, Galashiels	(32 beds)
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### **Implications from Existing Situation**

384. The first priority is the replacement of Peel Hospital, Clovenfords, discussion of which has been going on sporadically for some twenty years. Although the accommodation has been substantially improved since 1947, the restricted and overhauled site together with its relative isolation, a feature which makes for staffing difficulties, suggests that the decision to build a new hospital in a more favourable site should be made at an early date, so as to avoid spending funds unnecessarily on improvements.

385. With over thirty-five thousand out-patient attendances at the Hospital each year, it is essential that the first priority for the choice of a new site is that it should be located for ease of communication.

386. It is important to remember that the Hospital not only serves Roxburgh and Selkirk and part of Peebles, but also part of Berwick County.

387. From the location exercise made by the Economics team in which four possible locations were considered (Galashiels, St. Boswells, Kelso and Selkirk), a hospital at Galashiels emerges as

that which would involve a minimum total amount of travelling for people living in the catchment area. St. Boswells rates second with Selkirk and Kelso following in that order.

388. A site at St. Boswells, although well located for access to Edinburgh, would be at a disadvantage with regard to the provision of social facilities due to the proposed rate of population increase in that community. A site near Galashiels would be more desirable from this point of view.

389. The new housing development at Tweedbank could provide a source of labour for the new hospital, and this factor, together with the desirability of taking advantage of the proposed Galashiels-A68 link road, points to a location between Melrose and Galashiels south of the river. There are a number of possible sites in this area, and further investigations into these alternatives should be initiated.

390. If the two hospitals, Dingleton and the New District General Hospital, could be located within close proximity of each other, advantages might accrue from the more intensive use of facilities which could be shared.

391. The increasing involvement of the General Practitioner within the hospital framework, together with the trend towards Group Practice (apparent in the Borders, where of the thirty-seven doctors in Roxburgh and Selkirk only two are not in Group Practice), could expedite the setting up of Community Health Centres. These would integrate the facilities provided by the National Health Service with those provided by the Local Authority.

392. The present system of cottage hospitals in the Central Borders could readily be adapted to one of 'Community Health Centres'. These would offer a wide range of services, including maternity, geriatric and general cases within the competence of the General Practitioner, and accommodation for group practice surgeries. These could be integrated with facilities for health visitors, ante-natal clinics and the other services provided by local authorities. These centres could be located in or attached to the existing cottage hospitals in Hawick, Jedburgh, Selkirk, Peebles and Galashiels. A new centre would need to be built to serve the proposed population increase in the St. Boswells area.

### **Social Services—**

### **Existing and Future Distribution of Shopping Facilities**

*by Gerald Eve and Co., Consultant on Shopping*

### **Introduction**

### **Terms of Reference**

393. The terms of reference were to consider the existing and future provision of shopping facilities within the Central Borders. In carrying out this study, it was found necessary to have some regard to the interrelationship of the Survey Area with areas further east in the

Borders (in particular to the shopping centres at Kelso and Berwick-upon-Tweed), and also to relationships with major shopping centres at Edinburgh and Newcastle-upon-Tyne.

## Existing Distribution of Population and of Shopping Facilities

### Distribution of Population and Recent Trends

394. As described in more detail elsewhere, the Survey Area, roughly twenty-four miles square, consists mainly of hill country much dissected by the River Tweed and its tributaries. These valleys have given passage to road and rail routes and contain most of the population, estimated to have been nearly 74,000 in 1961, the latest date for which population figures are available by units smaller than Burghs and Landward Districts.

395. Two towns, Galashiels and Hawick, between them contained nearly 39% of the 1961 Survey Area population. There are in addition a number of smaller townships, the largest of which are Peebles and Selkirk. Other small townships are at Innerleithen and Melrose in the Tweed Valley, and Jedburgh in Teviotdale. Population figures for all these towns are given in Table No. 8 below.

Table No. 8

Urban Population as at 1951, 1961 and 1966

Small Burghs	POPULATION		
	Census 1951	Census 1961	(1) R.G.'s Estimate 1966
Galashiels	12,500	12,379	12,140
Hawick	16,720	16,210	16,200
Peebles	6,916	5,550	5,452*
Selkirk	5,880	5,130	5,482†
Innerleithen	2,366	2,300	2,210
Melrose	2,130	2,130	2,200
Jedburgh	4,080	3,050	3,450

\*Boundary alterations, 1961: estimated 1965 population on 1961 boundary was 5,441.  
 †Boundary alterations 1962: estimated 1964 population on 1961 boundary was 5,551.  
 R.G. = Registrar-General.

396. The seven townships so far listed contained about 65% of the population, the remainder living in large villages such as Earlston (1961 population 1,830) and St. Boswells (1961 population 1,350), in small villages and isolated dwellings.

397. The figures given in Table 8 illustrate part of the long-term decline in the population of towns. The overall picture for an area slightly smaller than the Survey area is summarised in Table 9.

398. Table No. 9 shows that between 1951 and 1966 population declined by just over 5,000 persons (about 6% of total at 1951). Taking the Area as a whole, the average annual rate of decline has dropped only slightly over the years 1961-66 compared with 1951-61. The rate of decline in the landward districts has increased, but this has been counterbalanced by a slowing

down (and in two cases a small reversal) of the declining trend in some of the towns.

Table No. 9

Central Borders: Population as at 1951, 1961 and 1966

Area	POPULATION		
	Census 1951	Census 1961	R.G.'s Estimate 1966
7 Towns listed in Table 8	49,680	47,840	47,260
Remainder in Landward Districts	24,010	22,410	21,290
Total	73,690	70,250	68,550

### Distribution of Shopping Facilities: Hierarchy of Centres

399. Just as there is no single dominant centre of population, there is no single dominant shopping centre. As would be expected, the largest shopping centres, containing some relatively large shops selling clothing and other consumer durables, are at Galashiels and Hawick. Both are similar in function as shopping centres to Berwick-upon-Tweed, some thirty-nine miles east of Galashiels and forty-four miles north-east of Hawick. The broad similarity between the three centres is illustrated by figures taken from the Area Tables of the 1961 Board of Trade Census of Distribution and summarised in Table No. 10. Analysis of the Census of Distribution data indicates that all three towns experience a marked inflow of retail spending to the extent of about one-third of total town sales through food, sweets, tobacco and newspaper shops, and at least 40% in respect of sales through shops selling mainly consumer durables.

400. None of these three towns qualify as a true regional shopping centre since none has the strategic position nor a sufficiently large town population in 'close-support' to dominate the East and Central Borders as a whole. Occasional purchases of major items of clothing, furniture etc., requiring comparison shopping or capable of being combined with a 'day out' are made in Edinburgh, and also some evidence was found of trips to Newcastle from the south-eastern parts of the Survey Area with access to A68 trunk road. But distances generally in the Border Counties are sufficient to discourage outflow of spending on large scale. Even allowing for the inclusion in the 1961 Census of Distribution figures of some spending by tourists patronising 'tweed shops' etc., there is little evidence of a large net outflow at that date.

401. Below Galashiels and Hawick is the hierarchy of shopping function but clearly more than local significance is Peebles. Lying nineteen miles west of Galashiels its isolation has given it strength as a shopping and service centre for this part of the Tweed Valley, a function which must also have been considerably reinforced by the town's development as a tourist centre. Although the estimated 1961 net inflow of spending to Peebles was on a much smaller scale than

Retail Sales by Local Authority Areas as returned in the 1961 Board of Trade Census of Distribution and Other Services

Local Authority Area	Shops selling mainly				All Shops		Sales per Shop	
	Food		Non-Food				Total	Non-Food
	No.	Volume £000's	No.	Volume £000's	No.	Volume £000's		
I. SURVEY AREA								
Hawick	138	1,766	84	1,679	222	3,445	£16,430	£22,370
Hawick County District		not available			32	413	£12,910	n/a
Galashiels	114	1,562	85	1,359	199	2,921	£14,680	£16,000
Selkirk	56	661	33	215	87	936	£10,760	£8,330
Selkirk N. & S. County Districts		not available			5	32	£6,400	n/a
Melrose	23	237	15	76	38	313	£8,240	£5,070
Melrose County District		not available			37	443	£11,970	n/a
Jedburgh	36	517	25	214	59	731	£12,390	£8,560
Jedburgh County District		not available			9	47	£5,220	n/a
Peebles	61	789	38	498	99	1,287	£13,000	£13,100
Innerleithen	31	342	17	95	48	437	£9,100	£3,590
Broughton & Peebles County District		not available			5	33	£6,930	n/a
Innerleithen County District		not available			13	94	£7,230	n/a
				Total	839	11,312	£13,282	
II. OTHERS								
Berwick-upon-Tweed	101	1,495	80	1,515	181	3,010	£16,430	£18,940
Kelso	60	823	38	419	98	1,242	£12,670	£11,210

the inflow to Hawick or Galashiels, it is estimated that it nonetheless amounted to about one-third of town sales through shops selling mainly food, sweets, tobacco and newspapers and about a quarter of sales through shops selling mainly consumer durables.

402. A centre similar to Peebles in function exists at Kelso a short distance east of the Survey Area. Kelso is situated at a point almost equidistant (about twenty miles) from Berwick-upon-Tweed, Galashiels and Hawick, and it certainly attracts some spending from the eastern fringes.

403. Returning to consideration of Peebles, there is a clear contrast of function here with Selkirk although both are roughly similar in population size. Selkirk is only six miles from Galashiels and twelve miles from Hawick and, although at 1961 it had an estimated net inflow of spending on food etc., amounting to nearly 7% of all such sales in the town, there was an estimated net outflow of spending on consumer durables amounting to about a quarter of potential sales arising from the town population. Thus, Selkirk functions as a local 'district' shopping centre closely linked to Galashiels.

404. The smaller centres at Jedburgh and Innerleithen have a similar function to that of Selkirk, albeit on a more modest scale (see Table No. 10). Jedburgh and district turn principally to Hawick for consumer durable purchases although there may also be some outflow of spending from this area to Kelso. Innerleithen and district looks to Peebles and also to Galashiels for such purchases.

405. Melrose, only four miles from Galashiels, has a more restricted function than either Jedburgh or Innerleithen, and experienced a net

outflow of potential spending on both food and non-food goods at 1961.

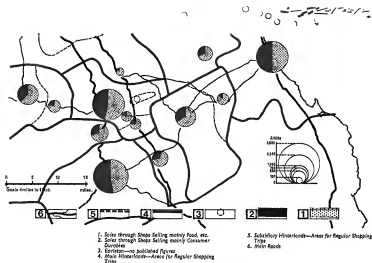
406. Outside these towns other shop groups selling mainly food and other household convenience goods are to be found in some of the larger villages, notably at St. Boswells (twenty shops) and Earlieston (twenty-three shops). As shopping centres it is considered that these two function similarly to Melrose, i.e. that they supply the bulk, but not all of local demand in respect of food and some household requirements, but that they cannot support shops selling fashion clothing and major consumer durables, such as are to be found in Hawick and Galashiels. Small shop groups selling mainly food, etc., are also to be found in the smaller villages.

407. Finally, it has been observed that mobile shops selling food and minor household needs are very active in the Survey Area. Clearly they are particularly convenient for housewives in rural areas, and also for new housing areas on the fringes of the larger towns.

#### Definition of Shopping Hinterlands: Size of Shopping Population

408. Examination of relative accessibility by public transport, combined with analysis of 1961 Census of Distribution Area Tables, has indicated areas of 'majority' support at different functional levels for the shopping centres described in the foregoing paragraphs. Boundaries are illustrated on Map No. 16 and the estimates of 1961 shopping support populations are given in Table No. 11.

409. It should be emphasised that the boundaries shown on Map No. 16 indicate areas of majority movement to shop at the centres



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Table No. 11

Hierarchy of Existing Shopping Centres and Estimated 1961 Population served at Male Functional Levels

Centres with 'large' shops selling clothing and consumer durables and providing a range of banking, commercial and professional facilities.

Centres providing for regular shopping needs including:  
(i) Centres listed in column (1);  
(ii) Other centres with very limited facilities in the groups specified in column (1).

Centres able to provide for daily needs of food and minor household goods including:  
(i) Centres listed in columns (1) and (2);  
(ii) Smaller towns and large village centres.

(1)	(2)	(3)
I. Hawick	Hawick . . . . . 22,500	Hawick . . . . . 22,500
27,500	Jedburgh . . . . . 5,000	Jedburgh . . . . . 5,000
	Total . . . . . 27,500	Total . . . . . 27,500
II. Galashiels	Galashiels . . . . . 24,700	Galashiels . . . . . 16,800
		Melrose . . . . . 1,800
		St. Boswells . . . . . 1,500
		Earlston . . . . . 1,800
		Total . . . . . 24,700
32,300	Selkirk . . . . . 7,500	Selkirk . . . . . 7,500
	Total . . . . . 32,300	Total . . . . . 32,300
III. Peebles	Peebles . . . . .	Peebles . . . . . 10,400
14,100	Total . . . . . 14,100	Immerdale . . . . . 3,700
		Total . . . . . 14,100

Population figures taken from 1961 Census of Population, Scotland, June 1961

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involved. Unstudied, hinterlands overlap both within and without the Area.

410. The figures in Table No. 11 show the pre-eminence of Galashiels and Hawick in their 1961 'regular' support populations, shopping mainly for consumer durables, amounted to 32,200 and 27,500 respectively. It is of interest to note the number of existing sub-centres within the Galashiels hinterland as compared with the Hawick hinterland. This situation is probably reflected in the results of the calculations of net flows of potential spending based on analysis of 1961 Census of Distribution data, which gave Hawick the larger calculated net inflow of spending on consumer durables. But it is recalled from Distribution of Population and Recent Trends that hinterland populations are declining.

#### Character of Main Shopping Centres

411. All three main centres, but notably Galashiels and Hawick, contain branches of national multiple traders selling mainly clothing and consumer durables, as well as large self-service food shops and/or supermarkets. In addition to shops and banks, etc., these three centres contain insurance and building society offices, other professional services and entertainment facilities.

412. Inspection of the three shopping centres revealed no evidence of heavy pressure on existing shop floor space. The reverse appeared to be the case, and it is considered that renewal, modernisations, internal reorganisations and improvement of trading methods could enable existing premises to carry a considerably increased volume of trade. In fact, some unusual increase in spending would be a welcome stimulus to the renewal of existing premises likely to be needed increasingly in the future and, as far as can be discerned, unlikely to be achieved on any scale against a background of population decline. It is estimated that renewal, internal modernisations and reorganisations, together with consolidation of shopping in 'fringe' frontages where this use is at present only sporadic and/or depressed, could probably as much as double the shopping capacity of Hawick and Galashiels.

413. In the case of Peebles, care would be needed to avoid undermining the character of the shopping centre as part of the total attractiveness of the town and its setting. (The same is particularly true of Melrose.)

#### Implications of Future Population Expansion Proposals

414. In order to consider the future shopping needs, it should be emphasised that certain basic facts in the existing situation must determine to some degree the course of future change. The existing hierarchy of shopping briefly described in the foregoing paragraphs is strongly entrenched. It follows that the concentration of shops and associated services in the main centres, notably at Hawick and Galashiels, is likewise strongly entrenched. Into this area it is proposed to introduce new population and inevitably, since

no new settlement can support a wide range of shops and services from its inception, considerable gain is likely to accrue in existing centres, enabling them to develop still further and strengthen their position vis-à-vis any new development.

415. At present Galashiels and Hawick meet the central shopping area needs of about 30,000 persons (see Table No. 11). From experience it would be unrealistic to envisage any new shopping centre competing with and even perhaps ultimately taking over in the long term as the main focus for the Central Borders as a whole unless the following conditions were to be fulfilled:

- (1) 'Close-support' to the new centre of at least 30,000 persons.
- (2) Rapid build-up, preferably before or as soon as possible after 1980.
- (3) A location as far as reasonably possible from the 'shadow' of Galashiels and Hawick.

416. If these conditions are not fulfilled, the short term advantage will pass to Galashiels and Hawick, enabling them to consolidate their positions still further. There is considerable capacity to accommodate increased trade in these centres, and as yet no proven factor such as difficulty of access to the central area or inability to provide requisite car-parking accommodation has emerged to put either centre at a serious disadvantage as to foster central-area type shop development at a new growth point.

#### Consideration of Alternative Patterns of Future Population Distribution in the Central Borders

417. The implications of alternative possibilities to the accommodation of 25,000 additional population, i.e. a total population of 100,000 by 1980, have been considered, and of alternative assumptions regarding population growth thereafter. Six alternative distribution patterns (models) have been studied, these being based on two principal variations, A and B.

418. Certain population assumptions are basic to both solutions, viz.:

- (1) that the increase of population up to 1980 will be about 25,000 as recommended by the Government White Paper;
- (2) that increase beyond 1980 will be open to two possibilities:
  - (a) growth by natural increase only to 115,000 population by 2000 A.D.
  - (b) growth by natural increase plus further planned immigration to 165,000 by 2000 A.D.

#### Consideration of Variation A

419. Variation A assumes expansion of existing towns up to 1980 and beyond, and new community development post-1980. Model 1 within Variation A assumes population increase to 1980 to be distributed within the growth possibilities of existing public utility services available at a number of points. Model 2

assumes that up to 1980 growth takes place mainly at Galashiels and Hawick up to the limits of development imposed by natural features, with natural growth thereafter distributed at other centres. In both Models the post-1980 'new community' alternative sites are north of Hawick and at St. Boswells.

420. After 1980, natural growth would increase the population of Galashiels and Hawick by 7,000 and 2,050 respectively and their ultimate town populations would therefore be of the order of 25,000 and 22,000, while their town and hinterland populations would reach nearly 58,000 and 38,000 respectively. As at present, part of the shopping demands generated by the large increase in the Galashiels hinterland population will be met by local centres such as Selkirk, Earlston, etc.

421. With the exception of the consequences of even limited pressures for new shop development likely to arise at Melrose, the view is that existing shop facilities offer a reasonable base for growth sufficient to meet the needs of population distributed according to Model 1. Growth will provide welcome stimulus to renewal and upgrading of facilities in established centres at all levels, and give rise to only limited demand for new local shop groups as at Tweedbank.

422. The effects of growth according to Model 2 are similar to Model 1 but, except for committed developments such as at Tweedbank and Jedburgh, growth would be concentrated in Galashiels and Hawick.

423. The resulting long term (i.e. post-1980) situation is the same as that yielded by Model 1. Pressure on Melrose is slightly reduced, but the early benefit to Jedburgh and Selkirk included in Model 1 is reduced, and in the case of Earlston is missing altogether. From the point of view of shopping population already in these areas Model 1 is preferred because it would spread the benefits of stimulus to early renewal.

424. Looking to the period beyond 1980 for both Models 1 and 2 it is very difficult to visualise the consequences of a new community of 50,000 without a more precise idea of the rate at which it would build up. Attention has been drawn to the way in which Galashiels and Hawick could consolidate their position in the short term to the disadvantage of long term new growth, and Models 1 and 2 assist them in this process.

#### Consideration of Variation B

425. Variation B assumes new community development before 1980. Model 3 assumes accommodation of 16,000 population at St. Boswells and committed development (+9,000 population) distributed elsewhere. Such a new community growing slowly to 1980 (say at 1,600 per annum 1970-1980), and in the shadow of Galashiels, would be unlikely to attract the larger multiples (clothing and household) represented in Galashiels and Hawick. The view is that in the short term both these towns and Kelso would benefit considerably, but that Jedburgh might suffer the loss of the northern areas of its hinter-

land. As in the case of Model 2, the stimulus of early population growth in the smaller towns is reduced to the minimum of committed development, and certainly up to 1980, Model 3 produces no new shopping advantage for the Survey Area as a whole and minimises possibilities of renewal and growth in the established centres.

426. By the end of the century Model 3 could have achieved a new situation, always provided that the full measure of population growth is realised. Otherwise, the disadvantages will be as set out in the previous paragraph.

427. Models 4 and 5 locate the new community (phased as in Model 3) respectively at Hawick North and at a site between Ancrum and St. Boswells. The former would have clear advantages for re-settled town dwellers, since they would have reasonably close access immediately to the largest of the established centres with multiple-trader representation. Existing shop floorspace could meet early increases in trade generated by the newcomers, and resources could be directed to re-development where necessary. Hawick and Hawick North could be planned jointly and the benefit to the southern part of the Survey Area could be considerable, and 'Greater Hawick' could become clearly the dominant centre of the Central Borders. On the other hand, should full realisation of the post-1980 population not take place, then such new development as had taken place would not be stranded too far from comprehensive shopping facilities.

428. The site between Ancrum and St. Boswells would have the same implications as regards shopping as those outlined for the site at St. Boswells and described above.

429. Neither Models 4 nor 5 offer much hope for general renewal in established centres since Model 4 channels resources towards Hawick, and Model 5 would tend certainly in the short term towards Galashiels. But there would be little available for the smaller centres.

430. Finally, Model 6 distributes population allocated to new community development in Models 3-5 into several new settlements located along the railway line between St. Boswells and Hawick. This would not involve central area shop development since each small settlement would have a local centre and would use either Galashiels or Hawick for major shopping. This Model has the attractions of Model 4 in that it does not raise the question of a commitment to a new central shopping area and, if long term population growth falls short of expectations, it would be relatively easy to cut losses if necessary at quite an early stage.

#### Conclusions

431. The conclusions are as follows:

- (1) Any significant new addition to the existing hierarchy of shopping centres would need new community development starting in the relatively near future, and building rapidly to at least 30,000 on a site at least six or seven miles from Galashiels or Hawick.

- (2) If there can be no assurance of growth of this kind, then evidence points towards attaching resettlement population as closely as possible to existing centres.
- (3) If this be the case, then the choice appears to be between concentrating growth as in Models 4 (Hawick North) and 6 ('Necklace') at new points with good access to Galashiels or Hawick, or distributing it among existing centres as in Models 1 and 2.
- (4) From the point of view of the existing population, the second choice must be the more attractive since it will secure the renewal of shopping facilities at all functional levels. For general day-to-day 'convenience' shopping, local centre facilities have their importance and should be maintained. From the point of view of resettlement population, however, the first choice may prove attractive since it combines ready access to the most sophisticated shopping facilities with the opportunity of a modern dwelling environment.

## INFRASTRUCTURE— TRANSPORTATION

### Introduction

432. The Roads Technical Committee, under the chairmanship of Mr. R. A. H. Allen of the Scottish Development Department, met on five occasions, the formal work of the Committee being completed in June 1967. Many informal and useful meetings were held between members of the Committee and members of the Unit. Whilst the Committee's task related to the characteristics of the road system and the effect that the influx of population in the Area with its complementary industrial expansion would have on this network, all forms of transportation were discussed. Members of the Unit had informal and formal meetings with other authorities such as British Railways, and members of the Consultative Group.

### Roads (See Map 17)

433. Members of the Committee provided information on the functioning of the road network, the schemes of improvement being implemented, and the proposals for future improvement. It became clear that the network of roads within the Area was for most of the year lightly trafficked and that it was mainly in the urban areas that congestion occurred and then only when industrial vehicles hindered progress in narrow routes through the towns.

434. Because of the lack of statistics, especially on the motivation behind the trips made on the road system, two studies were made—an origin and destination traffic study where drivers of all vehicles were stopped and invited to answer questions related to their journey, and a survey of work journeys and other trips made by employees. The latter involved the use of Questionnaire Forms. The information obtained from these studies forms an Appendix to this Report.

435. The work of the Committee can be considered under two headings; short term proposals

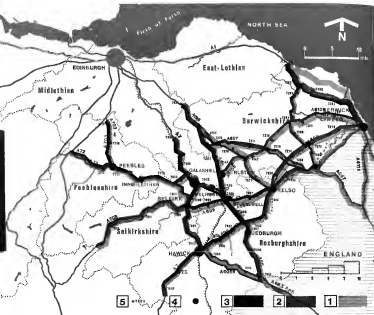
to assist the implementation of the urgent development at Tweedbank, and the improvement of communications between the A7 at Galashiels and the A68 north of Newtown St. Boswells; the longer term proposal to increase the population in the Area by 25,000 making the total population in 1980 approximately 100,000.

436. In May 1967, the County Councils of Roxburgh and Selkirk appointed Sir Alexander Gibb and Partners as Consulting Engineers to investigate and report on a suitable line for a new road between A7 near Galashiels and A68 north of Newtown St. Boswells. Three possible routes were to be considered and close consultation was maintained between the Consulting Engineers and members of the Unit. The Consulting Engineers' Report has recently been presented to the Joint Committee of the two County Councils. The line recommended by the Consulting Engineers lies to the south of the town of Melrose and follows the railway line for much of its length. A new bridge over the River Tweed at Galafoote is proposed near its junction with the A7, and the road terminates at A68 over one mile north of Newtown St. Boswells. The route of the new road is shown on Map No. 6. The new road, carefully fitted into the landscape, has been designed to ensure that it can be constructed in stages to match the pace of new development.

437. The longer term proposals for the road network were considered and detailed assessment made of the effects of differing forms of implementing the intention to introduce the new population with its attendant industrial development. The integration of the existing rail facilities with the road system was a hopeful factor influencing the longer term forms of development.

438. A study carried out by the Roads Division of the Scottish Development Department compared the cost of bringing the trunk roads A68 and A7 to a standard suitable for the expected flows on these roads in 1980 with normal traffic increases. The estimated cost of bringing the 55 miles of the A68 to a desirable standard between Edinburgh and the Scottish Border is in the order of five and a half million pounds, and would include major by-passes at Dalkeith (North), Puddhead and Newtown St. Boswells, as well as a relief road in Jedburgh. Within the Area the road would be a single 24 ft. wide carriageway.

439. By comparison, the estimated cost of roadworks on the A7 between Edinburgh and the Scottish Border, which is 19 miles longer than the A68, is approaching nine million pounds; the estimated cost of improving between Edinburgh and Hawick is just over seven million pounds. Within the Area a single 24 ft. wide carriageway is proposed with major bypasses at Dalkeith (West), Stow, and Selkirk, with relief roads in Galashiels and Langholm. While the flow of traffic on the A7 is appreciably less than on the A68, the standard of alignment attainable on the A7 would be much inferior to that possible on the A68. Thus, while no lessening of the tempo of road improvement works on the main



traffic routes in the Area was desirable from the safety and convenience consideration, it was shown that more impetus to development would be gained by improving the A68 trunk road.

440. Similar studies were made by the County Surveyors concerned for the A1 trunk road, which is the recognised winter route for traffic between Edinburgh and the North-East of England, and for the route from Galashiels via Peebles (A72-A700-A701). The trunk road A1 is 47 miles long between Edinburgh and the Scottish Border. The estimated cost of improvement to meet traffic flows in 1990 is nearly six million pounds; four million pounds of this

estimate would, however, be spent on bypassing Tranterland and Mussburgh to motorway standards.

441. The Galashiels to Edinburgh via Peebles route, 37 miles long, would cost approaching five and a half million pounds to improve, with a single 24 ft. wide carriageway between Galashiels and Peebles, including a major bypass at Walkerburn and Innerleithen. From Peebles to Edinburgh the provision of a dual 24 ft. wide carriageway is estimated at a cost of two million pounds. The A7 route is an attractive alternative road to Edinburgh from Carlisle, and would be a valuable tourist route in the plan for the Central Borders. The Hawick-Ancrum

Table No. 13  
Distributions of Population  
WATER SERVICES

MAY 1967

SUMMARY				Total M G.P.D.	Estimated Cost
Variation	Model	Case	Development Sources		
A	1	1	Gals Group 3-75 - Hawick Ex. 1-2 - Ais W. 3-19	8-14	£1,326,000
	2	2	GG 3-75 - HE 1-2 - AW 6-3 - Ind New 2-5	13-75	£4,909,000
	3	3	GG 3-75 - HE 1-2 - AW 4-12 - St. Bos. New 4-0	13-07	£2,548,000
B	2		As for Model 1 Modified to suit phasing of pop. expansion		
	3	1	GG 3-75 - HE 1-2 - AW 3-74	8-09	£1,676,000 <sup>a</sup>
		2	GG 3-75 - HE 1-2 - AW 5-7 - St. B. N. 4-0	14-65	£4,905,000
	4	1	GG 3-75 - HE 1-2 - AW 4-92	9-87	£2,213,000
		2	GG 3-75 - HE 1-2 - IL New 0-7 - AW 3-0 - JN 3-0	14-45	£6,280,000
	5	1	GG 3-75 - HE 1-2 - AW 3-33	8-28	£2,117,000
		2	GG 3-75 - HE 1-2 - AW 5-20 - St. Bos. N. 4-0	14-65	£4,200,000
	6	1	GG 3-75 - HE 1-2 - AW 4-12	9-07	£2,144,000
		2	GG 3-75 - HE 1-2 - AW 6-26 - JN 0-7 - JN 3-5	15-10	£6,404,000

<sup>a</sup> This cost allows for a natural increase of population of 14,000 when 1980.

Key

AW = Ais Water  
E = Excess  
G = Galskelds  
GG = Gals Group - Galskelds Group =  
GIE, ME, JN  
H = Hawick  
J = River Jol  
M = Milnora  
N = New

St. Bos. - St. Boswells River Treated  
Ais W. 3-19 - St. Bos. storage  
AW 3-74 - 4-12 - IL Extern Filtration - Extern Balancing  
AW 4-92 - IL - Extern Filtration - Extern Balancing  
AW 5-20 - 4-0 - New Dam - Extern Filtration - Extern Balancing  
Storage - Further Raising of Spillway  
Balancing Storage

road A693 with some improvement would provide an excellent industrial link between Hawick and the development at St. Boswells, supplementing the railway. The proposed new road between A7 at Galashiels and A68 north of Newtown St. Boswells (which would in effect replace the existing A691 through Melrose) provides the remaining crosslink in the road system, and could form the first phase of any major roadwork linking development in the West of Scotland and the North-East of England with an expanded Central Borders.

## Infrastructure—General Services

### Introduction

442. Five meetings of the Committee on General Services under the Chairmanship of Mr. J. E. Bellin of the Scottish Development Department were held at which existing services of water, drainage, and refuse collection and disposal were investigated, and proposals for dealing with new development discussed. The composition of the Committee ensured that all interests were taken into account and the inter-related factors, such as water supply, pollution of watercourses and recreational use of rivers, streams and lochs, fully discussed.

443. Independent meetings were held between members of the Unit and representatives of the South of Scotland Electricity Board, the Scottish Gas Board, and the Telephone Manager for Scotland. The existing services of these Public Utility Authorities and proposals to meet expansion formed the basis of discussion.

444. Formal and informal meetings were held in addition to those mentioned, enabling all members of the Committee on General Services to be aware of the information collected and supplied by the Unit.

### Water Supply (see Map 18(a))

445. *Existing Supplies:* All water consumed in the Study Area is collected, stored and treated within the upper reaches of the Tweed Catchment Area. The supply is of sufficient abundance to enable water to be transferred from the Catchment Area for use in Edinburgh and West Lothian as well as the Survey Area. Supplies may be drawn from the watercourses in the Area for use in industry, agriculture, and after appropriate treatment, for potable supply. The watercourses are clean and support abundant fish life. The application of high standards of treatment reduce pollution and, in those cases where effluent from treatment works falls below the standards acceptable to the River Purification Board, steps are being taken by the discharging body to rectify the deficiencies.

446. While abundant sources of supply are available, these have not been fully exploited and problems exist where immediate development is taking place, such as in Galashiels, where the existing supplies are difficult to maintain in periods of drought. The projected short term solutions have been reached to enable develop-

ment at the Tweedbank site to take place without much difficulty. In the long term the spare capacity of the Ale Water Scheme and the use of intake water from the Tweed and its tributaries will allow for great expansion of both population and industrial development. Storage reservoirs at the head of the Tweed and its main tributaries combined with new recreational lochs will allow regulation of the flow, particularly in periods of low rainfall, and facilitate the use of river water for both domestic and industrial needs.

447. All schemes proposed for the Area and the implementation of water supply proposals will be the responsibility of the new Regional Board for the South-East of Scotland, which will take over the assets and liabilities of the existing authorities. The proposals have been prepared by the technical officers of the existing authorities, and it may be expected that the Board would wish to implement the schemes with the urgency required to meet the needs of the development envisaged.

448. *Water—Proposals:* To meet the demands of the first phase development at the Tweedbank site, an extension of the Ale Water Scheme distribution system will be laid to the boundary of the site and balancing service storage provided. It was estimated that this work would cost one hundred and fifty thousand pounds. This work would form part of a comprehensive regional scheme to link with the development proposed in the vicinity of Galashiels, to remedy the existing deficiencies in Galashiels Burgh. Expenditure by Galashiels Burgh of six hundred and seventy thousand pounds would augment the town's supply to a total capacity of three million, five hundred thousand gallons per day. The augmented Galashiels scheme includes abstracting water from the River Tweed, pumping, treatment, and storage works.

449. The possible long term development possibilities of the Study Area were investigated and costed. Table No. 12 shows the range of possible forms of development investigated and costed. In respect of water supply, Table 13 gives the increases of population in each of the Models of Development which have been prepared for the drainage area. Both Tables refer to developments mainly within Roxburgh County and Galashiels Burgh. Peebles Burgh and Peebles County have existing rights of abstraction, and additional supply for development can be provided under the Regionalisation Scheme by the Regional Water Board.

450. Hawick Burgh's resources are adequate for its existing population, but difficulty has been experienced in the past due to inadequate storage facilities. The existing supply of one million two hundred thousand gallons per day could be increased to one million eight hundred thousand gallons per day by the provision of an impounding reservoir, a new trunk main into Hawick and additional treatment works, at an estimated cost of six hundred and fifty thousand pounds. An alternative exists in the form of augmentation from the Ale Water Scheme and a costed comparison would be made before implementation by the future Regional Water Board.

451. Jedburgh, the remaining large centre of population in the Surwy Area, has an adequate supply to meet its existing needs. Total resources at present amount to 420,000 gallons per day and consumption is only 174,000 gallons per day. The proposed expansion of Jedburgh to a population of 5,000 by 1980 is possible within the existing resources of the Burgh.

452. Existing supplies in Selkirk County and in Selkirk Burgh at present meet the needs of the population. As no great expansion is envisaged due to restrictions imposed by other physical factors in the County and in the Burgh of Selkirk, proposals are limited to conservation of supplies and improvements already being implemented.

453. Kelso Burgh, although outside the Area, takes water from the Ale Water Scheme, and the additional supply needed for the proposed expansion of its population from 4,000 to 8,000 would be considered by the new Regional Board to ensure that the resources of the Ale Water Scheme did not become over committed, but no great difficulty is anticipated.

454. Supplies to that portion of the County of Berwickshire falling within the Area will allow for a small population increase at Earlieston. Any major expansion of population would need expensive impounding works if supplied from the catchment of the Burncleugh Burn at an estimated cost of one million pounds. The expansion proposed at Earlieston to a population figure of 1,450 would be met by the existing supply, possibly supplemented by inexpensive additional intake works on the Rhyt Burn.

455. From an assessment of the alternative Models of Development within the Area of the Study by the Inspector and Chemist of the Tweed River Purification Board, it emerged that development near the River Tweed upstream of its confluence with the Teviot River presented more advantages than could be obtained by developing within the valleys of either the Teviot or the River Jed. The community of 12,000 population at St. Boswells would be supplied by the Ale Water Scheme in the initial stages of development, and this supply would be augmented by further abstraction from the River Tweed in the long term, should this community increase substantially.

456. It will be seen from Table No. 12 that estimated costs relating to the above proposal are one million, seven hundred thousand pounds in the short term, and four million, six hundred thousand pounds in the long term, each cost being inclusive of first phase works to serve Tweedbank. All estimates of costs exclude those costs properly included in the development of the sites, i.e., the provision of small diameter distribution water mains within the individual areas of housing and industry.

457. The estimated demand of all proposals considered was based on a consumption of 90 gallons per day per head. This figure allows for the demand made by industry. Adjustments would be needed to the costs shown in the Tables, only in the event of a new industry having an unusually large demand for water being established in the Area.

#### Drainage (see Map 18(a))

458. The Committee investigated drainage facilities as they exist at present, and presented for appraisal schemes at present under construction and measures necessary to meet the demands of new developments proposed. Map No. 18a shows the location of all treatment plants in the Area under consideration, the lines of main foul sewers in cases where communities are linked, and the sites of refuse disposal tips. Surface water systems of drainage are confined to systems within the main towns, and the separate disposal of rain water from roads and buildings is now an accepted feature of the more modern developments in the Area.

459. *Treatment Works Proposals:* An extension of the sewage treatment works at Galashiels is proposed. The new works will serve the expansion needs of the Burgh of Galashiels, and will serve the new development at Tweedbank. The expansion of the plant is estimated to cost two hundred and fifty thousand pounds but this work might be carried out into two phases.

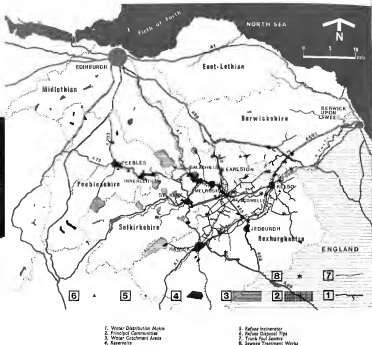
460. Melrose and Gattinside combine for the purpose of sewage treatment, and the plant at Melrose could be expanded at an estimated cost of forty thousand pounds to cater for the needs of immediate developments in Melrose and Gattinside, and in addition deal with the proposed increase of 1,500 persons envisaged.

461. Roxburgh County administer twenty-two treatment works, there being twenty-three special drainage districts in the Landward Area of the County. By 1972 those works in need of improvements will have been renewed or extended. At Newtown St. Boswells the present works could be expanded at a cost of forty thousand pounds to serve a total population of 3,400, the existing population being 1,400. The treatment plant at St. Boswells is at present operating above its design capacity. The proposals for a new community in the vicinity of St. Boswells will affect the phasing and location of new works in relation to the last two communities mentioned.

462. In Peeblesshire, the main increase in population is envisaged at Peebles Burgh. A scheme costing one hundred and forty thousand pounds is in course of preparation whereby the increase of 800 persons over the existing population is catered for. About ninety per cent of the estimated cost is required to enable the plant to deal with the existing flows. The combined foul drainage of Lanedethen Burgh and Walkerburn is treated at the Walkerburn works. As these works are at present overloaded, an estimate of development costs is being prepared. The recently started treatment plant at West Linton has a small margin for expansion and, as no major increase in population is envisaged, no further expenditure is anticipated.

463. In Selkirkshire, the communities of Clovenfords, Yarrowford, Ashkirk and Ettrick-bridge are served by septic tanks. To meet the demands of existing and new developments at Clovenfords, a separate system of drainage is proposed and a new treatment works at Caddonfoot is projected. The technical aspects of the

MAP 12. REGIONAL SETTING FOR PUBLIC UTILITY SERVICES  
Map 12. (a) WATER SUPPLY, DRAINAGE AND REFUSE DISPOSAL



scheme are under consideration at present. Selkirk Burgh is having a scheme of renewal and extension of its existing works prepared for early construction, which could deal with the envisaged population of 6,600 by 1980.

464. In Berwickshire, the only treatment works of importance within the Study Area is at Earlieston. The 1980 population of 1,450 is within the present capacity of 1,800 and no new works are envisaged.

465. The remaining Burghs within the Study Area are at Hawick and Jedburgh. A total population of 17,500 by 1980 is envisaged in Hawick. The capacity of the works could be increased to accept a twenty-five per cent additional domestic flow by increasing the mechanical power in certain of the processes. The capital outlay is estimated at one thousand pounds. To deal with an additional population of ten thousand with attendant industrial development, the estimated cost would be sixty



Table No. 13  
Drainage Services

Distribution of Population  
Summary of County Sanitary Inspector's Report, 22.5.67

Variation	Model	Case	Development (Expansion Population)	Estimated Cost of Treatment Works £	Remarks
A	1	1	Nonurban St. Borewell St. Borewell Dunbladen Molham	40,000* 45,000* 48,500** 21,000	*Reduce £40,000 to £25,000 for 1,200 pop. *Reduce £45,000 to £30,000 for 1,200 pop. **Reduce £48,500 to £25,000 for 600 pop.
A	1	3	St. Borewell South	1,000,000	
A	2				As for Model 1, modified to suit phasing of population expansion
B	3	1	St. Borewell South	320,000	
		2	St. Borewell South	240,000	
		3	St. Borewell South	750,000	
B	4	1	Harwick North	324,000	
		2	Harwick North	200,000	
		3	Harwick North	934,000	
B	5	1		320,000	
		2		200,000	
		3		720,000	
B	5	2 & 3	St. Borewell		As five Variations A Model 1 Case 1
B	6	1, 2, 3	various combinations of 1,000, 5,000 and 6,000 each		£20 per head
B	3	1	St. Borewell	18,000	This would depend on location of population
		2 & 3	St. Borewell	12,400	As for Variation A Model 1 Case 1

The estimates of costs are governmental and are not based on detailed site investigations.

thousand pounds, assuming no change in the method of treatment of the Sludge.

466. In Jedburgh, the treatment plant and the drainage system are being investigated by the Burgh's Consulting Engineer. The infiltration of surface water into the system is being examined. The additional population of 1,400 estimated for Jedburgh, with attendant industrial development, can be served by the works which were designed to treat four hundred thousand gallons per day. The costs of remedial works to exclude infiltration water is not yet known.

467. Kelso Burgh envisages increasing the population to 5,000. The existing works constructed in 1962 can serve a population of 4,500. Space is available at the existing works for expansion.

468. The Committee on Services examined the alternative Models of Development in the Area and the estimated costs of treatment works for the alternatives appear in Table No. 13. The results of the costings were appraised, and the proposed future population distribution in the Study Area with a new community sited at St. Boswells achieved greater advantages than the other Models.

469. The continuation of the modern practice of designing all drainage schemes on the Separate System is recommended.

### **Electricity Supply (see Map No. 18(b))**

470. The Central Borders Area forms part of the recently formed Edinburgh, Fife and Borders distribution area. The supply of electricity is administered by the Borders District Manager from the District Office in Galashiels. The Borders District comprises Roxburghshire, Peeblesshire, Selkirkshire, Berwickshire and part of Northumberland.

471. Two 132 KV transforming stations are sited within the Study Area, one at Galashiels and one at Hawick. A further transforming station is sited at Bodes slightly east of the Area. The routes of the 132 KV overhead lines are shown on Map No. 18b, together with the route of the 400 KV overhead line commissioned in December, 1966. The latter overhead line is at present operating as a double circuit 275 KV line forming the second super grid interconnection between Scotland and England.

472. Additional power needed to meet the demands of new development in the Central Borders can readily be met by the Electricity Board. The transforming station at Galashiels is capable of expansion on land already owned by the Board. Major development in the vicinity of Galashiels can be served from the Galashiels transforming station and, only in the event of a major development taking place in the north-eastern part of the Study Area, would a new 132 KV transforming station be needed.

### **Gas Supply (see Map No. 18(b))**

473. Gas supplies for the Central Borders

Area are administered by the Edinburgh and North-eastern Group of the Scottish Gas Board. Manufacture of gas has ceased at the Beder Burghs and all supplies are imported from the Gasworks in Edinburgh. An 8-inch diameter high pressure main links the Gasworks to Galashiels and Selkirk. Low pressure systems emanate from these two Burghs. (See Map No. 18(b).) The consumption of gas is increasing in the Central Borders and no difficulty is found in meeting the demand.

474. The natural gas main link between the north of England and Edinburgh is being planned at present, and will be linked to the existing low pressure system near Eedles. All the settlements existing and proposed within the Area of the Study might well be the first in Scotland to benefit from the new supplies of natural gas.

### **Telephone Services (see Map No. 18(b))**

475. The routes of main line and junctions are shown on Map No. 18b together with telephone exchanges. Exchanges are in the main automatic, the manual exchanges being Kelso and Melrose. Galashiels Exchange is in process of extension and should be opened next year. All exchanges in the Area will be fully automatic by 1970.

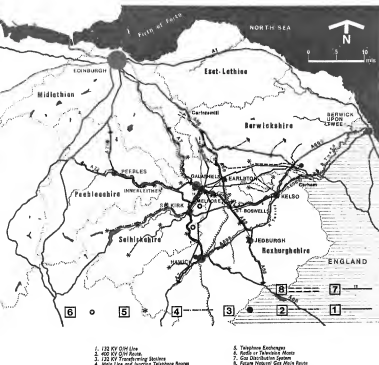
476. The system of telephone communications is being extended and improved to meet the existing demand and has built-in spare capacity capable of meeting new developments as they are completed. A large development at St. Boswells can be catered for by extension of the new high capacity land line from Galashiels to Melrose at present under construction. A new medium capacity audio line connects Galashiels, Kelso and Jedburgh, allowing Galashiels to deal with three hundred and thirty-eight simultaneous calls. During the next three years a high capacity link will be completed, linking Galashiels, Coldstream and Berwick-upon-Tweed. This link will be initially capable of dealing with nine hundred simultaneous calls and can be stepped up to deal with two thousand seven hundred calls.

### **Report on Refuse Collection (see Map No. 18(e))**

by J. C. Wylie, B.Sc., M.I.C.E., Consultant on Utility Services

477. Within the Area there are twelve separate authorities responsible for the collection and disposal of domestic wastes. The populations served by these authorities range from 2,000 to 16,500. With the exception of Galashiels where a thirty-five year old, hand-charged incinerator is operated, all other authorities dispose of crude domestic refuse at eighteen separate tipping sites.

478. The tips are operated by Peebles County Council (Hornburgh Ford), Peebles Town Council, Innerkithen Town Council, Selkirk County Council (Stirling Bridge), Jedburgh Town Council, Hawick Town Council have sufficient capacity to allow them to continue operating at the present rate of deposit for estimated periods



ranging from eight to twenty-five years. Kelso Town Council and Selkirk Town Council require increased tipping facilities immediately, while Berwick County Council (western area) are in the process of negotiating a new tipping site. The tipping site made available to Galashiels Town Council for incinerated refuse only has sufficient capacity to serve for many years at the present rate of working.

479. The disposal of refuse is small scattered

tipping sites is incompatible with the character of the region which is envisaged. With the pending development, the problem is pressing. Not only has Melrose already had to come to an arrangement with Roxburgh County Council to ensure the closing of their tip at Tweedbank as quickly as possible, but also, for example, the continued operation of Innerleithen's tip near the confluence of the Leithen Water and River Tweed is giving rise to concern by the Tweed River Purification Board.

480. It is most desirable that the tipping of crude refuse should be brought to an end as soon as possible. The installation of refuse treatment plants, however, is not economically viable unless there is an adequate population to support them. It is therefore visualised that the ultimate solution to refuse disposal would be found in the establishment of two or three refuse treatment plants of suitable design to meet the needs of the Area, and conveniently sited to serve districts of six to twelve miles radius.

481. The acute problem which has arisen because of the proposed first phase of development at Tweedbank and the surrounding area of Galashiels, Melrose, Selkirk and part of the County of Roxburgh, has led to the establishment of an investigating committee representing the authorities concerned, whose function will be: (1) to investigate the waste disposal problem of the Area, including domestic refuse, sewage sludge, trade and industrial wastes, (2) determine the most suitable type of plant for the Area (the alternatives being incineration, pulverisation, composting or a combination of these) with estimates of capital and running costs, (3) establish the most suitable site for the plant and (4) methods of disposal for the treated product.

482. The present population of this Area is 30,000, and a suitably sized plant might be provided by some 40,000 to 60,000 population depending on future development envisaged.

483. It may be that a reasonably satisfactory solution, which would meet the immediate problems of waste disposal within the Area, could be found through the establishment of either one or two similar groupings of waste disposal authorities working on a similar basis. However, it is suggested that an enduring solution to the problem of refuse collection will only be found within the framework of the Report of the Ministry of Housing and Local Government's Working Party on Refuse Storage and Collection published by H.M. Stationery Office, 1967.

484. The principal recommendations contained in this Report, which affect the Area, are:

- (1) That a community having a population of over 100,000 should have a separate cleansing department whose head should have chief officer status, reporting directly to the committee responsible for the cleansing service.
- (2) That a community of less than 40,000 population is insufficient to support the financial outlays involved in the provision of adequate equipment and staff to operate a satisfactory service, and
- (3) That Local Public Health Authorities should accept responsibility for the collection and disposal of all solid waste matter including, in addition to domestic wastes, garden wastes, litter, trade and industrial wastes.

485. A second Working Party has just been appointed by the Government to report and make recommendations on the disposal of wastes. The findings of this Working Party cannot be anticipated, but it is clear that if the recommendations of the Working Party on

Refuse Storage and Collection are to be met, an all embracing authority charged with the duty to provide for the proper Storage, Collection and Disposal of solid wastes throughout the Area would require to be established.

486. Such an authority would require to have powers:

- (1) to provide for the treatment of putrescible wastes before disposal, to the requirements of the Tweed River Purification Board and other authorities concerned; and
- (2) to acquire land of low quality, suitable for the reception of solid waste matter, and provide for its improvement and return to agriculture, recreation or some other function which would bring benefit to the Area as a whole.

## RECREATION

### Introduction

487. Recreation is a general term to describe leisure activities occurring in the evenings, at weekends and on holiday. Certain evening and weekend activities tend to be centred in or close to the town, whilst other weekend and holiday activities tend to be dispersed throughout the countryside. Recreation is concerned with leisure activities in the towns, usually in the evenings and on Saturdays, and those leisure activities which are more generally found in the countryside over the weekends and summer holidays.

### Urban Recreation

#### Indoor

488. The existing facilities for indoor recreation cater for a variety of people. It was noticeable on visits to recreation centres that activities relate closely to age groups and types of people.

489. The very youngest groups from seven years of age join in activities connected with a church, such as brownies and cubs. Within this environment, the child who responds to discipline and the rules of the game is quite happy. In many ways, it is similar to school. The youth can be divided into two age groups. The younger group from fourteen to eighteen years prefer the dance halls and youth clubs; the older group from eighteen to twenty-five prefer the pubs, hotels, political clubs, operatic and dramatic societies.

490. The younger people, who rely particularly on the dances and youth clubs, are those who are less well off in the community, and are either at school or have just left school for a non-skilled or semi-skilled job. On a good night when star pop-groups play at the dances, four hundred people may attend, and on a normal evening possibly two hundred. These numbers can support special buses from the main towns which return late in the evening. It is often a noticeable feature that a few young people, mostly boys, hang around the halls chatting and watching those going in. Possibly the halls themselves are not sufficiently attractive to entice them in, or

the boys are not bold enough, or the prices are too expensive. Most of the youth clubs in the Area are run by the churches. During the week the evenings on which they can open are limited, and they are not well equipped because of restricted finances. Attempts have been made to set up non-denominational clubs, such as at St. Boswells which now has a membership of eighty and is gradually buying equipment out of its own subscriptions. The Gateway Youth Club at Galashiels has larger premises, more equipment, a trained youth leader, and a membership of over 200. When the club moves to its new centre it is hoped to open it every evening and at weekends to fully utilise its facilities. Many of the better educated youth move away to jobs outside the Area or continue their education elsewhere; those who are left very often organise their own recreation activities. Some young people follow no regular activity and attend dances and clubs infrequently. For those whose parents are in 'county' social circles, there would seem to be an already prepared social activity calendar.

491. The slightly older teenagers and those in their early twenties almost exclusively prefer the more sophisticated dancing centres, the pubs and hotels for evening entertainment. These centres may provide various facilities, for example folk singing at the pubs and dinner-dancing and bars in the hotels. In many cases the entertainments are a prelude to parties given at home. A complete evening's entertainment can be expensive and private transport is essential. This age group seldom attends youth clubs. In Galashiels, for the price of joining a club, one can meet friends on Saturday and Sunday afternoons in bright surroundings. Local political clubs sometimes provide varied facilities, darts, billiards, and smaller dances where there is opportunity to meet older people.

#### **Borderers**



492. The outstanding talent of many Borderers is evident in the high standards of performance in the dramatic, debating, operatic and other musical societies. Particular talents or

willingness to help and learn are prerequisites for those, and many age groups may take part. The dramatic and operatic societies' annual productions always seem booked to capacity.

493. Evening classes are also a form of recreation, particularly the practical variety. Younger people often tend to take courses for examination purposes, but many classes are for interest and for discussion. Societies for flower-arrangers, cage-bird fanciers, horticulturists, and camera and pipe band enthusiasts take care of many specialised interests. One of the most thriving is the Galashiels Arts Club, which provides a centre for recitals, lectures, and dramatic performances. Twenty-eight societies are affiliated to it. The church is also a centre where children, youth, mothers and fathers gather for meetings on different days of the week.

#### **Outdoor**

494. Outdoor urban recreation facilities include playing fields, gardens and parks. Much information is contained in the Scottish Development Department Research Group's 'Pilot Study of Recreation Facilities for the Borders'.

495. The Survey included the distribution, the type, number, accessibility and quality of facilities. The detailed breakdown of facilities was as follows: playing fields, football, rugby, hockey and cricket; sports facilities; tennis courts, bowling greens, putting greens, golf courses, curling rinks; and children's playgrounds, gardens and parks.

496. To determine the adequacy of provisions and accessibility in the present study, the recommendations adopted were those of The Lothians Regional Survey and Plan, Volume Two. Where no standard was given, reference was made to local opinion. Quality was judged on general maintenance and appearance.

497. The surveys showed that all the Border towns have very adequate standards and that accessibility is generally good; the exception is a lack of a children's playground at St. Boswells. The quality of facilities is in many cases excellent and they are generally well-maintained. Football pitches at Walkerburn and Innerleithen are liable to be waterlogged owing to the proximity of the river, but there are no other flat sites available nearby.

#### **Tourism**

##### **Introduction**

498. A tourist or holiday maker is a special person travelling to one or many places, looking at attractions and seeking opportunities for enjoyment every day for two or three weeks of the year. Particular people are attracted to particular things and places, whether by choice or circumstances they come individually, in a group or as a family.

499. The information on which type of person comes to the Borders and what they come to see has already been published in the following Reports:

(1) A Survey of Scottish Tourism by Audrey

Hunt. A Survey carried out by the Social Survey for the Scottish Development Department in 1964.

- (2) A Report of Pilot Survey on Tourism in the Borders carried out by the Geography Department of the University of Edinburgh for the Scottish Tourist Board, 1966.
- (3) Peeblesshire County Development Plan. Survey Report, 1953.
- (4) Selkirk County Council. Areas of Great Landscape Value and Tourist Development.
- (5) County of Roxburgh. Report on Areas of Great Landscape Value and Tourist Development, 1965.

### The Holidaymaker

500. The following lists a few facts about visitors to the Borders and Scotland:

- the greatest percentage of those visiting the Borders are from Scotland, Northern England, South-east England and Europe, in that order.
- most visitors come from adults-only families.
- about half of the visitors are over forty-five years of age.
- most of the visitors stay for only part of their holiday in the Borders, often only one or two nights.
- most holidaymakers travel by car.

501. The holidaymakers' preferences are visiting beauty spots, looking at shops, sitting about, motoring and walking. The strongest criticism from holidaymakers is the bad weather and lack of things to do, especially on Sundays; and the image of the Borders as an area only for middle-aged highbrow tourists.

### Tourist Attractions

502. *Historic Places:* The prime tourist attractions are Melrose Abbey, Dryburgh Abbey, Jedburgh Abbey, Mary Queen of Scots House, Abbotsford House and Scott's View. Romantic, historic and literary associations are the essence of the Border country, and make it a place for modern pilgrimage. Smaller houses and gardens are open to the public on certain days of the year.

503. *Events:* It is uncertain to what extent the Common Ridings and Beaw Lads celebrations are enjoyed by visitors: they are essentially local events and not well advertised. The Rugby Sevens and the K&O Ram Sales just outside the Area are internationally renowned and supported.

504. *Activities:* Fishing, golf, pony trekking and trail riding are the most popular activities (apart from those already mentioned above). Fishing is generally restricted to private waters; for golfers there is a course in almost every town open to visitors; pony trekking and trail riding is centred in Melrose, and near Hawick.

505. The Tweed Valley Water Ski Club uses Cauldside Loch where it has laid out an International class slalom course. Skiing is on Sunday afternoons only and non-members may ski. But since the loch is deep and cold, beginners are

not encouraged. There is also skiing on Yetholm and Houslaw lochs.

### Tourist Accommodation

506. Hotels, boarding houses, bed and breakfast houses, youth hostels, caravans, tents, cottages and shacks are all represented and listed in the above reports. The most important facts for consideration from a regional planning point of view are the increasing demand for weekend cottages, especially in Peeblesshire, and the increasing demand for caravan-camping sites. There is also a sharp distinction between the towns such as Jedburgh, which is primarily used by visitors for an overnight stopping place, and those which are used for stops lasting several days (such as Melrose).

### Recreation (Development Proposals)

#### Urban Recreation

507. One of the distinctive features of urban recreation is the high intensity of use. Recreation requirements vary from the multi-use youth centre with sports hall to single use outdoor sports and games areas.

508. Youth centres with sports halls may involve a financial outlay of at least six thousand pounds and are only recommended for towns of over five thousand population.\* For towns with populations above ten thousand the cost may be about fifty thousand pounds. An even distribution of centres throughout the Area in an hierarchical system, whereby facilities are shared and programmes organised by region or district, is advisable. It would be expected that some young people, possibly the older groups, would find their interests served only by the larger and more sophisticated centre. For other entertainments there would be sufficient provision in the home town. Most towns have their weekly dances and these should continue to attract more young people, particularly if they become more sophisticated than halls that happen to be used for dances.

#### Dance Halls

509. To alleviate social tensions which may inhibit the proper use of dance halls, they should incorporate the following types of facilities:

- (1) A place to eat and drink, and watch the group or band.
- (2) A variety of small things to do in an area away from the dancing, such as billiards, table skittles, darts.
- (3) The lighting should be dimmed and/or the hall should be small to give a crowded appearance.
- (4) The provision of a host or hostess at occasional dances to persuade everybody to dance, instruct new dances or announce an attraction or prize.

510. A variety of alternatives to dancing makes a dance a less agonising experience for

\*Commonly known as the *Scottish Tourist Board*. Published by the National Playing Fields Association and the Council Council for Physical Recreation.

many, and provides the boys with an opportunity to ask a girl to sit and drink or play table skittles. Dim lighting and a crowded hall obliterates most people from the general view, and causes lack of confidence. A good host or hostess can exhort everyone to dance, play requests on record, announce a lady's invitation and generally make people less aware of themselves.

### Youth Clubs

511. The youth clubs attract young people between the ages of fourteen and twenty, and particularly the sixteen and seventeen year olds. The enterprising ones use the facilities in order to pursue certain interests and to meet people, and the less enterprising probably join because their friends are members and there is little else to do. Some would not consider joining a club—the name itself would be anathema—because it would threaten organisation, authority and regularised activity.

512. The aim of any club or society is to attract and provide facilities for its members, in this case, for all young people between fourteen and twenty who vary in aptitude and ability. The principles, requirements and standards to be considered are as follows:

#### Principles

- (1) A full-time youth leader should run the club.
- (2) An alternative name should be found for Youth Club, for example, the Hideout, the Hideout Club, Hideout House.
- (3) The club to be sited in the urban centre or adjacent to it, possibly in a park.
- (4) The club to be open in the evening, most of the day Saturday and Sunday and during the school holidays.

#### Requirements

513. Facilities should provide for the following range of interests:

- (1) Games and sports.
- (2) Reading and writing, a small library, easy chairs, writing tables required.
- (3) Cooking and eating, a small kitchen required which may be used for demonstrations.
- (4) Model making, oncos making, car repairs, painting, needlework, hairdressing.
- (5) Meetings, talks, film showing, demonstrations, dramatic productions, exhibitions, dances, a small hall with dais or stage required.
- (6) Record player and tape recorder. There should be sufficient room for dancing, facilities for buying soft drinks, biscuits and popular magazines to read.

#### Standards

514. Three towns can support the requirements listed above with the help of a paid youth leader. These are Galaahels, Hewick (where plans have already been made), and St. Boswells. Smaller youth clubs should be centred in Peebles, Innerleithen, Melrose and Jedburgh, and arrangements made by youth leaders from the larger

clubs for joint programmes and sharing of equipment and facilities.

515. There are proposals for new premises at Galaahels and Hewick. As a standard for sports and games facilities, the following has been extracted from Community Sports Halls (November 1965) published by the National Playing Fields Association and The Central Council of Physical Recreation.

516. For a population of 5,000–10,000 a Practice Hall is recommended, dimensions 90 ft. x 54 ft. x 20 ft., to provide for combat sports, trampolines, gymnastics, weight training, table tennis, badminton, rhythm and movement, keep fit, five-a-side football, cricket net practice, basketball, tennis, netball, badminton, and volleyball, lectures and demonstrations.

517. For a population of 10,000–15,000, two halls are recommended; a practice hall, dimensions 40 ft. x 40 ft. x 18 ft., to provide for combat sports, trampolines, gymnastics, weight training, table tennis, badminton, rhythm and movement, keep fit, lectures and demonstrations; a larger hall, dimensions 120 ft. x 60 ft. x 25 ft. for tournament standard badminton (four courts), netball, basketball, tennis, spectator provision for three hundred and a refreshment area. These standards already exist in some towns but facilities, not of the best quality, tend to be scattered and provided for by numerous individual clubs. When they can be concentrated in one place, costs can be lowered by using the same facilities and maintenance overheads.

518. The balance of the other five requirements vary from town to town and year to year, and provided sufficient rooms are allocated for the whole spectrum of interests, simple adjustments can be made by the youth leader. Where possible, the youth leader should be consulted as soon as a centre is contemplated.

519. Peebles, Innerleithen and Melrose could use their schools and halls as clubs. Jedburgh is to redevelop its town centre, and could incorporate a small youth centre.

## DEVELOPMENT STUDIES

### 'Journey to Work' Study

520. During the analysis of possible locations for industrial development, the complexity of the journey to work in a rural area like the Borders became apparent. The studies of industry and employment carried out by the Economic team implied that large-scale industrial growth was more likely to be achieved by concentration, and that this would result in an increased number of journeys from all parts of the Area. A detailed study, therefore, was undertaken to find the optimum location for a major industrial site to serve the whole of the Area, based on a minimum average journey time for the maximum number of people.

#### Standards and assumptions

521. (1) The Peebles, Innerleithen and Walker-

burn district was not considered for major industrial location because of its relative isolation.

- (2) The optimum location would be where the total time for all commuting journeys is minimal.
- (3) An equal proportion of people from each town would commute to the industrial area.
- (4) Road improvements (principally the A68 trunk road and the A6091 road) and town expansions would take place as proposed in the most acceptable 'alternative development'.
- (5) The centre of each town would be the centre of gravity of people living within that town. This means that a journey measured to the town centre will be an average journey because some people would have a greater distance to travel and some people less.
- (6) Only journeys by road were considered except where a journey by rail would obviously have a great attraction for improving journey time and convenience, i.e. from Hawick to St. Boswells.

#### Method Used

522. Journey times for each length of road in the proposed class one network were calculated according to distance and average speed attainable (see Map No. 19). Average speeds were influenced by gradient, bends, width and observation.

523. Each junction in the road network was numbered and for each of these points a total commuting time figure was obtained by taking the product of the journey time to each town and its population. The total of these products for each point then enabled comparisons to be made, the lowest total giving the optimum point. Several test studies were made on theoretical communications networks and it was found that low-points in total commuting time appeared either at junctions or at the midway points between them. In a network such as that proposed by 1980, low points were only found at junctions.

524. Table No. 14 shows the results for each point taken, and the location of points as shown on Map No. 19.

Table No. 14

Point	Population/Time results
Point 1 . . . . .	1,133,203
Point 2 . . . . .	1,153,995
Point 3 . . . . .	952,466
Point 4 . . . . .	1,070,435
Point 5 . . . . .	1,094,975
Point 6 . . . . .	1,079,745
Point 7 . . . . .	1,303,645
Point 8 . . . . .	1,579,490
	812,575*
	936,195**

\*Assume commuting from Hawick by rail.

\*\*Assume improvement of A68 to achieve average speed of 35 mph.

525. Point 3 (junction improved A6091 and A7) was found to be the optimum location. In fact this point is in close proximity to the proposed Tweedbank housing development.

Point 4 (junction improved A6091 and A68) is the next best location. Alternatively, if the

A698 were improved to give average speeds of about 35 mph instead of 25 mph, then Point 6 (St. Boswells) becomes as favourable as Point 3. Also, if all journeys between Hawick and Newtown St. Boswells were made by rail, then Point 5 (Newtown St. Boswells) is even better than Point 3.

#### Conclusions

526. This study demonstrates that the industrial site proposed at Tweedbank could also bring benefits to all towns, but since further development in this area is undesirable, another location would need to be found for the new industrial complex. The A7 trunk road is less suitable for carrying commuting traffic than the A68 trunk road which would justify acceptance of the second location at Point 4. However, if the A698 to Hawick were improved, St. Boswells would be as good a location. Because of the additional advantages which this would bring to Hawick, the proposal should receive serious consideration. Also the favourable result achieved for Newtown St. Boswells when the railway is substituted for the road journey from Hawick suggests that the continued use of this section of the railway should be investigated more thoroughly in view of the threatened closure. The St. Boswells area as a location for a large industrial complex can therefore be recommended.

#### Further Application

527. The simplicity of the method employed enables the optimum locations to be tested against changes in both population distribution and communication networks. A more accurate study could be undertaken if the actual proportion of labour expected to commute to the proposed industrial area from each town could be ascertained.

#### Industrialised Building Study

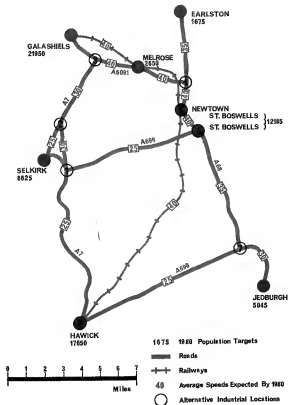
528. The Public Housing Authorities in the Central Borders will be facing a common problem of providing housing for the planned immigration of 25,000 people by 1980. This presents an ideal situation for the programming of housing construction to take advantage of industrialisation. One of the principal reasons for the failure of established industrialised building contractors to reduce their prices to a competitive level with that of traditional construction has been the unwillingness of client authorities to phase their programmes into continuing serial contracts to suit the production process. Because the Area offers the possibility of using these techniques, a study was made into the Planning Implications of the General Characteristics of Industrialised Building.

#### Factors Affecting Site Selection

529. *Transportation:* The probable rate of house building would not justify the establishment of a factory producing heavy system components. There are, however, existing factories in Central Scotland whose potential is under-used, and components from this source could be



MAP 19. JOURNEY TO WORK STUDY



transported. A factory producing components for a lightweight system might be located within the Area.

530. *Site gradients:* Lightweight building systems are affected by gradients to the same degree as traditional building. However, with heavy concrete systems, stepping and staggering tend to be expensive, so that slopes of 1:10 should be regarded as a maximum and broken contours should be avoided for these types.

531. *Contract size:* This depends on (1) the total programme of contracts in serial form to keep production of components scheduled with an erection timetable; and (2) the size of contract on a particular site. Precast concrete systems require larger minimum contracts than lightweight systems. The minimum contract sizes are, for lightweight systems fifty houses (3-5 acres), and for heavy systems 150-200 houses (14 acres).

## Factors Affecting Layout and Appearance of New Development

532. *Building heights:* Most precast concrete systems were conceived to produce multi-storey buildings. *In situ* no fines concrete systems can build competitively at any height. Lightweight systems tend to be cheaper than concrete for one and two storey houses, but are as yet unproved for three or four storeys. In connection with the use of these methods, it may be possible to encourage local contractors to rationalise the design of their own components and increase their output.

533. *Space between buildings for accommodating crane movements:* Space required to fulfil daylighting and sunlighting requirements will give sufficient space for the manipulation of cranes.

534. *The incorporation of irregularities in layout:* Heavy systems generally demand a fairly simple geometrical building form and can incorporate steps and staggers less easily than lightweight systems.

535. *External appearance:* The monotonous effects of repetition encouraged by the benefits of mass production of units should not be allowed to lower environmental standards. One and two storey houses will normally have timber framed panels clad with weatherboarding aluminium sheet, clay tiles, etc., whilst some light systems offer a brick skin. Heavy concrete

systems depend on exposed aggregate or on applied finishes.

536. *Variation in dwelling size and type within one contract:* Eighty-five per cent of the requirements for different sized dwellings can be satisfied without losing the advantages of larger scale production. The remaining fifteen per cent of dwelling sizes could be provided by traditional building methods.

## Conclusions

537. It should be possible to create continuous serial contracts for housing, using industrialised building techniques to maximise production by unifying all public authority efforts in the Area.

538. After the completion of the proposed Tweedbank site, the development programme will coincide with the change to the metric system, involving the possible design and manufacture of new components.

539. Only if the programme were to be phased in conjunction with development elsewhere would it be feasible to adopt a heavy concrete system. Otherwise a no fines system or a lightweight system, which is adaptable to change and without transport problems or heavy plant investment costs, would be more suitable for an area where the rate of growth cannot be exactly determined, and where the main requirement for dwellings will be of the two storey type.

## Appendix I: Origin and Destination Survey

### Introduction

540. Land use with its corresponding particular activity is the sole generator of traffic. In order to understand why traffic is moving as it is now and to project what it will do at some future date, it is necessary to find out the purpose for which each vehicle is making a trip, or in other words, to identify the activity which is generating or attracting this movement. Having discovered the distribution of present activities and the magnitude of movement for each activity, and with a knowledge of future land use patterns, a determination of future traffic movements is possible, modified by changes in our ownership rates and the likely future split between modes of travel.

541. Information on traffic volumes existed for many of the roads. This information, however, gave no indication of the proportion of through traffic, nor did it indicate what activity was causing a resident to use a particular road. In order to form a basis for predicting future traffic volumes, it was decided to conduct an Origin-Destination Survey. This was computer processed, and the analysis of the results produced a better understanding of the movements which are taking place, not only the particular land use generator but the sphere of influence of combinations of several of these activities. This information aided in the production of the proposed land use and transportation plan for the Area.

### Methodology of Survey

#### Procedure

542. At a meeting of the Roads Technical Committee in October, 1966, the decision was made to undertake a full Origin-Destination Survey. The idea of a cordon around the Central Borders Area had to be abandoned as an adequate coverage of the Area would have involved manpower in excess of that available. Therefore, a decision was taken to limit the Origin-Destination Survey to five census points on the main roads leading out of the Area towards the cities and major growth areas; this information to be supplemented by a Work and Shopping Journey Questionnaire Survey conducted through employers in the Labour Exchange Areas. The Unit provided the material for the roadside interview, and the Counties carried out the Survey and collated the informa-

tion into a form suitable for computer card punching. The Unit was responsible for the coding and sorting of the Work and Shopping Journey Questionnaire. The coding forms for both surveys were card punched by IIT Data Services in London, and the computer processing was carried out on an Atlas Computer in Chilton, near Oxford (the programme having been written at the Usher Institute of Edinburgh University).

#### Technical Aspects of the Origin-Destination Interview Survey

543. **Traffic Zones:** All zones were identified by a three digit code. Scotland was divided into eleven zones, each comprising one of the Ministry of Transport's Standard Traffic Zones, but renumbered so that X0 became 000 and X8 (the zone encompassing the Central Borders Area) being ignored as it was to be subdivided. England was divided into seven zones which became larger as greater distance separated them from the Survey Area. The X8 zone in Scotland was divided into 35 zones. As far as was possible, the boundaries of these zones followed county boundaries, rivers, or railways, and centred upon major roads. A zone was allocated to each Burgh in order to ascertain the traffic originating there (see Map No. 20(a) for traffic zones used in the Synthesis). The time involved in determining the size and shape of these zones was considerable and is an important factor to be borne in mind for future Traffic Survey programming.

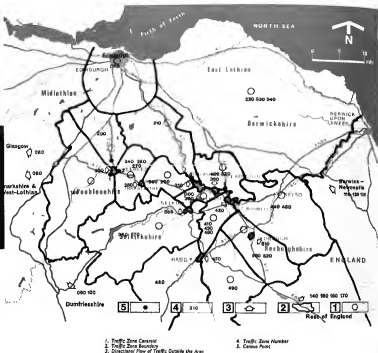
544. **Census Points:** Five traffic census points were chosen. One was on the A68 trunk road north of Newtown St. Boswells, a second on the A7 trunk road north of Galashiels, a third on the A703 road north of Peebles, and two on the A72 road—one east of Peebles and one to the west (see Map No. 20(a) for their location).

545. **Classified Count:** A classified count was made in both directions for a 16 hour day from 6.00 a.m. This was necessary not only as a check on the interviews, but also since the interviewing was only to be a 12 hour one-way survey this information was necessary for expansion factor determination. Ministry of Transport forms were used.

546. **Personnel:** Each point required one policeman (two for the day), one classified counter (two for the day), and two to interview.

# MAP 28. ORIGIN AND DESTINATION TRAFFIC SURVEY

## Map 10. (a) INTERVIEW SURVEY TRAFFIC ZONE IDENTIFICATION WITH SURVEY STATION POINTS



This last had to be augmented during peak hours in several cases, as one person can only perform about 100 interviews/hour.

567. *Census Point Aids:* The necessary aids included signs—'Census Point Ahead'—hats, and road markings.

568. *Schedule of Forms and Instructions:* A survey form was produced by the Unit after consultation with the Scottish Development Department and a review of forms used by Perth, Leicester, Pembrokeshire, and the

Ministry of Transport. The information obtained for each journey included the type of vehicle, the number of occupants, the origin of the trip, the destination of the trip and the trip purpose (see form opposite). A series of instructions for the interviewer to follow was also prepared together with a separate listing to be shown to the driver of the seven trip purposes: to or from place of work, on a business journey, shopping, recreation, education, carriage of goods, and other. These two forms were mounted on cardboard. The participants were



briefed the day before the Survey was to be carried out.

549. *Actual Survey:* The 12 hour survey began at 7.00 a.m. at five points. Only traffic travelling north was interviewed on the A66, A7 and A70J road points, and the out-of-town movement on the A72 road points. The survey was 100% as traffic flows were very moderate. The day, April 21st, 1967, had no extraordinary happenings occurring. The weather was cold and clear most of the time with a few snow squalls. Public support was excellent with very few refusals. The total number of journeys interviewed at the five points over the 12 hours was only 4,373 with the highest one-way hourly flow of the day of 174 journeys on the A66 between 5.00 and 6.00 p.m.

550. *Coding:* The survey forms were produced in such a way that the Counties only had to write the coding numbers in the columns provided on the form. After consultation with ITT Data Services, it was decided to do the coding in red ink in order to ease the task of the card puncher. The Counties were able to code in very rapid time, due to the ease of coding as well as to the small flows of the Survey Day.

551. *Publicity:* The success or failure depended to a great extent upon public knowledge and appreciation of the reason for the surveys. A press release was published four weeks before the Survey Day and again just before the Survey. A Unit member also appeared on television the day before the Survey to explain the reason for making the Surveys and describe what would be required of the public. Public knowledge on the day seemed quite good.

#### Technical Aspects of the Origin-Destination Questionnaire Survey

552. *Traffic Zones:* The same zones used in the Interview Survey were utilized in this survey except that the Borough zones were subdivided. Since in the previous survey every zone had to end in a zero (e.g. 000, 410, 520), a subdivision of zone 410 into industrial, residential, and central areas would mean a loss of 410 zone, but a gain of zones 411, 412, 413 and 414. The total number of zones possible in this survey was 77, but it was to be expected that few people would live or work outside of the X8 traffic zone (see Map No. 20(f) for Zones used in the Synthesis).

553. *Schedule of Questionnaire Form and Interview:* The Work and Shopping Journey Questionnaire was prepared by the Unit after consultation with a sociologist and other survey form experts. The information gathered from each employee included sex, age, marital status; car ownership; mode of travel to work; and shopping habits—which town centre was visited, if any, and mode of travel used. The forms were

sent about two weeks ahead of the actual Questionnaire Day (April 21st, to coincide with the other survey) to 890 employers of approximately 30,000 people (employers of 5 or over employees as ascertained by the Ministry of Labour). A letter explaining the purpose of the survey and asking for the co-operation of the employer was enclosed with the required number of forms plus 10% and a stamped addressed return envelope. The time spent in counting, sorting, collating, sealing, and stamping was considerable.

554. *Actual Survey:* As the returns came in, it became apparent that the Ministry of Labour's figures were now too high and that the 10% additional error in the wrong direction. About 5,000 were returned as superfluous; 17,000 returned completed, or about a 75% return.

555. *Coding:* The Firms' Traffic Zone and Standard Industrial Classification number were preceded on these forms in an attempt to save time after the Questionnaire Day as it was this latter time which was critical. The reproduction of 6 numbers on 30,000 forms was a mammoth task and took 10 people 8 days. Upon the receipt of the 17,000 completed forms, the home addresses were then coded by the appropriate traffic zone number.

556. The Unit was aided during this stage in the coding by three people with knowledge of each County. It took twelve people two weeks to sort the forms into Counties, then search for each address and write in three numbers. The rest of the form had been printed in such a way that the card puncher could read the crossed boxes. This eliminated a substantial amount of coding and worked successfully (see form opposite). As in the normal experience in surveys of this kind, the coding stage was the most time-consuming.

#### Synthesis of Survey Results

##### Origin-Destination Roadside Interview Survey

557. The volumes obtained in the sixteen hour two-way classified count were compared with the hourly volumes of the Interview Survey, and it was apparent that an expansion from the twelve hour one-way data to two-way data was possible (the error in expansion was less than one per cent). Thus, all results are based on 7,530 journeys, a two-way twelve hour survey from 7 a.m. to 7 p.m. at five census points on the north of the Area. Diagram No. IV(a) shows the vehicular composition during the Survey. A comparison with the average composition of inter-urban traffic shows that a larger percentage of goods vehicles occurs during a 12 hour survey than a 16 hour and a corresponding lower percentage of private cars.

Central Borders 16 Hour Survey	Central Borders Interview Survey	Average Composition of Inter-Urban Traffic
Car 39%	Car 66%	Car 49%
L.C.V. 15%	L.C.V. 15%	L.C.V. 14%
H.C.V. 14%	H.C.V. 14%	H.C.V. 14%
Coaches 3%	Coaches 9%	Coaches 3%
M.C. (under 1%)	M.C. (under 1%)	M.C. (under 1%)

Name

Firm

SSC No.

As you know, a Traffic Survey is to be conducted in the Western Borders Study Area. This particular questionnaire is being issued to all employees in your firm and in many other firms, and will contribute to the Survey.

The purpose of the questionnaire is to gather accurate information on existing traffic movements to and from your work place and shopping centre. Your co-operation in completing the questionnaire will be greatly valued and all information given will be treated as confidential.

1. What is your full postal home address? \_\_\_\_\_

PLEASE MARK 'X' IN APPROPRIATE BOX IN QUESTIONS 2-5

2. Please could you give the following details about yourself?

Sex 

Male	<input type="checkbox"/>	0
Female	<input type="checkbox"/>	1

Marital Status 

Single	<input type="checkbox"/>	0
Married	<input type="checkbox"/>	1
Other	<input type="checkbox"/>	2

Age 

Under 20	<input type="checkbox"/>	0
20-29	<input type="checkbox"/>	1
30-39	<input type="checkbox"/>	2
40-49	<input type="checkbox"/>	3
50-59	<input type="checkbox"/>	4
Over 60	<input type="checkbox"/>	5

3. Do you or other members of your household go to a town centre for shopping at least once a week?

Yes	<input type="checkbox"/>	0
No	<input type="checkbox"/>	1

IF "YES",

a. Which one of the following town centres is visited most often?

Galauchide	<input type="checkbox"/>	A
Berwick	<input type="checkbox"/>	B
Inverleithon	<input type="checkbox"/>	C
Jedburgh	<input type="checkbox"/>	D
Kelso	<input type="checkbox"/>	E
Melrose	<input type="checkbox"/>	F
Newtown St. Bonwells or St. Bonwells	<input type="checkbox"/>	G
Peebles	<input type="checkbox"/>	H
Selkirk	<input type="checkbox"/>	I
Berwick	<input type="checkbox"/>	J
Carlisle	<input type="checkbox"/>	K
Edinburgh	<input type="checkbox"/>	L
Glasgow	<input type="checkbox"/>	M
Newcastle	<input type="checkbox"/>	N
None of these	<input type="checkbox"/>	O

4. What is the total number of cars owned by our household?  
(owned meaning partly or fully paid off)

None	<input type="checkbox"/>	0
One	<input type="checkbox"/>	1
Two	<input type="checkbox"/>	2
More than two	<input type="checkbox"/>	3

4. How did you travel from home to work today?  
(Mark regular mode only)

Driver of car	<input type="checkbox"/>	0
Passenger in car	<input type="checkbox"/>	1
Bus	<input type="checkbox"/>	2
Train	<input type="checkbox"/>	3
Bicycle	<input type="checkbox"/>	4
Motorcycle, Scooter	<input type="checkbox"/>	5
Walk all the way	<input type="checkbox"/>	6

b. How is the trip made?

Car	<input type="checkbox"/>	0
Bus	<input type="checkbox"/>	1
Train	<input type="checkbox"/>	2
Scooter, motorcycle	<input type="checkbox"/>	3
Walk all the way	<input type="checkbox"/>	4

PLEASE RETURN THE COMPLETED QUESTIONNAIRE TO YOUR EMPLOYER  
THANK YOU

# DIAGRAM IV. ORIGIN AND DESTINATION TRAFFIC SURVEY—INTERVIEW

Diagram IV (a) VEHICLE CLASSIFICATION FOR TOTAL TRIPS



Diagram IV (b)  
VEHICLE CLASSIFICATION  
AT EACH SURVEY STATION

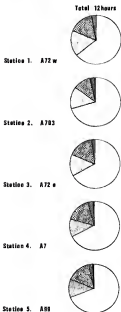


Diagram IV (c)  
VEHICLE CLASSIFICATION  
AT EACH SURVEY STATION  
DURING TWO PEAK HOURS

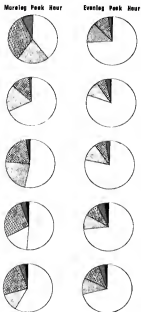




Diagram IV (d) VEHICLE OCCUPANCY FOR TOTAL TRIPS



## Persons per Vehicle

558. The Census Point on the A68 road handled 27% of this volume, the A703 road point at Peebles 23%, the A7 road point 20%, and the two A72 points each 15% (this was also true for the full sixteen hour two-way count). The hourly totals alternated between 6% and 7% from 7 a.m. until 1 p.m.: from one o'clock they rose from 8% to a peak of 13% between 5 and 6 p.m., then back to 9% by 8 p.m. The vehicle composition at each point can be seen in Diagram No. IV(b). A comparison with Diagram No. IV(a) suggests that the A703 road carries more private cars, but less Heavy Goods Vehicles and that the A7 road carries more Heavy Goods Vehicles but less Light Goods Vehicles. A further study was made of the classification at each station during the two peak hours, 8-9 a.m. and 5-6 p.m. (see Diagram No. IV(c)), showing in general a lower percentage of cars travelling from 8-9 a.m. and a higher percentage between 5-6 p.m. than the daily average. In the morning peak, the point on the A72 west of Peebles carried a very much lower percentage of cars and higher percentage of Heavy Goods Vehicles than the other four points. At the evening peak again the point on the A703 had the highest car and lowest heavy commercial vehicle percentage.

559. The total vehicle occupancy distribution over the survey time can be seen in Diagram No. IV(d), with the expected high percentage of one-person occupied. Several interesting features occurred when the occupancy numbers were related to each hour (Diagram No. IV(e)). For example, whereas the two-person occupied peak is between 7-8 a.m., the one-person is from 8-9 a.m. The two-person is greater than the one-person at 11-12 a.m. and the two-person remains very level at lunch time. It also was apparent that most of the one-person travellers do not come home for lunch and that their evening peak hour is more acute than the morning one.

560. The purposes for the 7,530 journeys are shown on Diagram No. IV(f). One of the most striking outcomes of the Survey was the low percentage of work journeys made in vehicles (only 18% over the 12 hours), suggesting that a high percentage of the Border workers walk to work (a hypothesis substantiated by the Questionnaire Survey). On the other side, the percentage

of recreation journeys was very high, 20% for a Friday Survey in April. An extraordinary factor which revealed itself when the purposes of the private cars were plotted against time (Diagram No. IV(g)) was that at the evening peak hour from 5-6 p.m., Recreation Journeys outnumbered Work Journeys. Interestingly, the Business Journeys peaked at 9-10 a.m. and 2-3 p.m. whereas the Work Journeys peaked at 7-8 a.m. and 5-6 p.m.

561. Map No. 20(b) shows the twelve hour-two-way journeys mapped according to Origin, Destination Desire Line Theory. Of the total 7,530 journeys, only 14% of these journeys were passing through the Area, a surprisingly low figure considering the location of the survey points and the heavy use by through traffic expected on the A68 road. The east-west movement accounted for 37% of the total, which was strikingly high considering the location of the Survey Points. The north-east to south-west movement was also not so slight as might have been expected.

562. Map No. 20(c) illustrates the 5-6 p.m. peak hour flow. This Map has been drawn ten times the value of the preceding Map, so that it was possible to depict the 1,000 peak hour journeys. At this time of day, 15% of the journeys were through journeys, not dissimilar to the daily percentage. The north-south percentage was greater at this hour than over the day, 69% as compared with 63%. Tables Nos. 15 and 16 show the actual journeys between the traffic zones so that a comparison of the total movement and the percentage of that which occurs at this peak hour is possible. The most striking feature of this diagram is its similarity with the twelve hour, two-way flow diagram. There is no concentration of journey lines as is the norm in a peak hour diagram, but rather it displays the same scattered pattern.

563. A result of Map No. 20(b) was a decision to map why the particular zonal movements were made. Map No. 20(d) shows Work and Business journeys combined, and therefore displays most of the journeys necessitated by work purposes (Table No. 17 gives the totals). As was shown in Diagram No. IV(f), Work and Business Trip Purposes amounted to 55% of all purposes over the twelve hour survey day. Of these, 22% were

Diagram IV (e) GRAPH OVER TIME OF VEHICLE OCCUPANCY

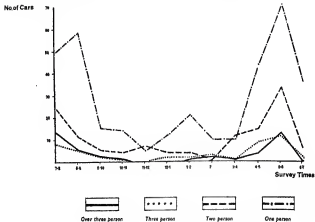


Diagram IV (f) TRIP PURPOSE FOR TOTAL TRIPS

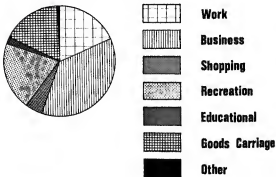
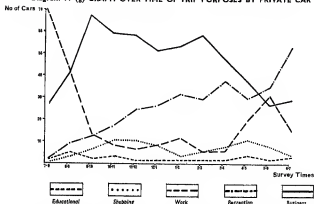


Diagram IV (g) GRAPH OVER TIME OF TRIP PURPOSES BY PRIVATE CAR



east-west (1% through traffic) and 33% were north-south (5% through traffic). Within the east-west movement, about 38% was bound to or from Peebles, and in the north-south movement 64% was bound for Edinburgh to work.

564. Map No. 20(e) shows only recreation journeys and was produced because the pattern of recreational journeys in this area seemed to merit further investigation, as mentioned earlier. Of the 20% total recreational trips, 6% were east-west (1% through traffic), and 14% were north-south with nearly half of these through trips. Within the east-west movement, over 22% went to Peebles, over 22% to Western Peebles-shire and the same to Glasgow. The north-south movement had 58% to or from Edinburgh with about 15% more moving between England and Northern Scotland. Within the total recreational journeys to and from Edinburgh, over 40% were from areas outside the Central Borders (Table No. 18 gives the totals).

565. A comparison of the two trip purpose diagrams disclosed that on the Work Journey Map the north-south desire lines had a definite centre of gravity at Galashiels, whereas on the Recreation Purpose Map the north-south desire lines bore no relation to this.

#### Origin-Destination Questionnaire Survey

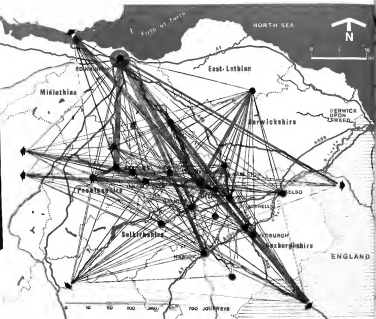
566. After rejecting unsuitably answered forms, the computer processed 16,836 forms. This was a very good acceptance rate, as only one hundred were rejected.

567. The first section of questions asked of each employee concerned his sex, marital status and age. The results of the Survey showed a 59% male/41% female ratio of employees. This is a very high female proportion. The percentage in

marital status was not unusual: 63% married, 34% single, 3% other. The age grouping produced a very striking corroboration of the Border problems today (see Diagram No. V(a); i.e. 50% of the workers are between the ages of 40 and 65, and over three-fifths of these are between 50 and 65 years of age. Diagram No. V(b) illustrates in percentages the characteristics of the labour force (note the higher percentage of females than males under 20 and the very high percentage of females between 20 and 65 who are working). Diagram No. V(c) relates these characteristics to the type of industrial employment; i.e. primary, secondary textile and non-textile (a division made because of the importance of textiles in this area) and tertiary industries. It was expected that the proportion of women to men employed in textiles would be high, but in fact it was nearly the same percentage as the national figure (54% of the questioned employees in textiles were women and 53% of the employees in textiles nationally women). However, this is higher than the percentage of women employed in the whole secondary sector (49%) and certainly is much higher than the percentage of women employed in all sectors (41%). Note the higher proportion of employees under 20 in textiles as compared with the other industrial sectors—in other words people are still entering this industry. The large number of males in tertiary industry as compared with all the others is also worth noting.

568. The numbers of employees questioned who were members of a household which owned at least one car was exactly 50%; i.e. half the employees in firms of five and over do not have cars (Diagram No. V(d) shows the percentages owning one, two and over two cars). This number of 50% who owned no car directly related to the fact that 50% of the employees walk to work. This high proportion of walkers

Map 20 (b) INTERVIEW SURVEY TWELVE HOUR TWO-WAY JOURNEY  
DESIRE LINES

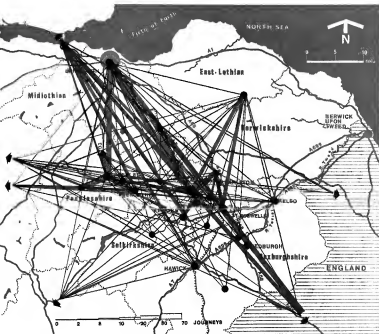


explains the small work journey encountered in the Traffic Survey. The other modes of travel include 27% in cars and 15% in buses (see Diagram No. V(e) for the Mode of Travel to Work).

568. Map No. 20(g) shows the Interzonal Home to Work Pattern of Movement of the employees answering the Questionnaire. Almost 75% of the employees worked within the same traffic zone that they lived in (see Table No. 19 for the volumes) and in fact 85% of these employees

were living and working within the same Borough. Since the married female worker has been in such demand in the Borders and has particular problems enhanced by travel to work, a separate investigation was made of the Interzonal Home to Work Pattern of the Married Female (see Map 20(h) and Table No. 20). Over 80% of the married females work in the zone in which they live, somewhat higher than the employee average of 75%. An investigation of the two Maps showed that in general the characteristics were the same. Hawick and Galashiels were the two

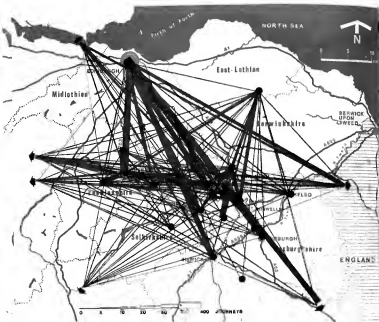
Map 20 (c) INTERVIEW SURVEY PEAK HOUR TWO-WAY JOURNEY  
DESIRE LINES (5 p.m.-6 p.m.)



heaviest attractors, with Hawick employing almost 30% of the interviewed employees and Galashiels about 20%. However, Hawick was the heavier of the two as scarcely anyone left Hawick to work elsewhere, whereas 10% of the employees living in Galashiels worked outside the town. The same pattern was true for the married female worker but the percentages were higher, i.e. Hawick employed 100% of its working married females whereas Galashiels and Peebles employed 97% of theirs. Galashiels attracted employees from the surrounding

countryside, and from Burghs like Innerleithen, Melrose and a few from Selkirk. Hawick, however, not only attracted a larger number from its surrounding countryside but it also attracted 20% of the employees living in Jedburgh. This attraction by Hawick was also true for the married female worker, with 50% of the Melrose married female workers and 20% of those from Jedburgh working in Hawick.

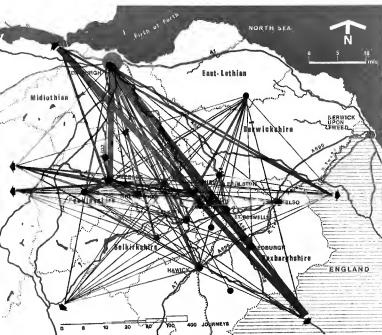
570. An investigation of travel to work by car or bus used in the Home to Work Movement



showed a direct correlation between high numbers living and working in their own zone, high bus usage and low car usage. When many employees had to go outside of their Burgh or landward traffic zone to work, the car usage was high, e.g., Melrose had 62% car usage by employees and Hawick had 19%. However, Hawick had 23% bus usage and Melrose had 10%.

571. A section of questions on the major shopping centre which people in the Borders use

was also included in this Questionnaire. Over 90% of those who answered said that they or other members of their household went to a town centre for shopping at least once a week. As Map 20(d) and Table No. 21 show, Hawick and Galashiels were the most heavily visited (32% and 31% respectively) with Kelso next with 10%. Interestingly, 85% of the shopping in Hawick was done by people actually living there whereas only 65% of the shoppers in Galashiels were Burgh people. Of the Border towns, Kelso had the lowest percentage of use by



its own townspeople (49%), implying a large use of Kelso's shopping facilities by the people living in the surrounding areas. Hawick, Peebles, Selkirk, Kelso and Inverkeithing primarily serve themselves and their surrounding countryside. Galashiels draws 5% of its shoppers from Selkirk, 4% from Melrose, and 7% from Galtonside. Jedburgh draws 6% of its shoppers from eastern Roxburghshire, and 1% from Hawick. One of the most interesting features to come out of the shopping survey was that of the 4% of the shoppers who went to Edinburgh, 24% of them

came from Hawick (the furthest town from Edinburgh); 11% came from Peebles and 8% from Galashiels, which was more expected.

572. Diagram No. V(f) shows the mode of travel to shop. Walking is the largest method, with car, bus and train following in that order. A more detailed study showed a direct correlation between distance and mode; i.e. Burgh shoppers primarily walked and the surrounding zones had proportionally higher car and bus

DIAGRAM V.

ORIGIN AND DESTINATION TRAFFIC SURVEY—QUESTIONNAIRE

Diagram V. (a) AGE DISTRIBUTION

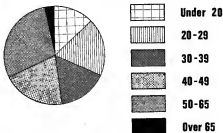


Diagram V. (b) ANALYSIS OF LABOUR FORCE BY AGE, SEX AND MARITAL STATUS

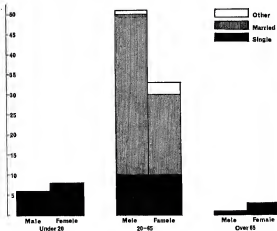
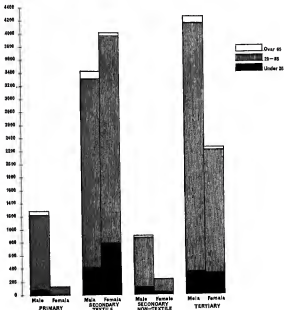




Diagram V. (c) INDUSTRIAL CLASSIFICATION BY SEX AND AGE



usage. The two highest users of train journeys were shoppers going to Edinburgh and Glasgow, 144 journeys and 51 journeys respectively. An investigation of the Edinburgh train journeys disclosed the striking fact that 63% of these were from Hawick—thus explaining the large number of shopping journeys from Hawick to Edinburgh (see Map No. 20(i) for this strong desire line). This largely unexpected result surely suggests a closer look into the continuation if not expansion of this mode of travel.

### Summary of Results

573. The most important outcome of the Origin-Destination Survey was the very small volumes counted during the Survey period. None of the roads was carrying traffic anywhere near its capacity. The amount of through traffic was also very low—only 14% of the total movement.

574. The point on the A66 trunk road

recorded the highest volumes with the other points following in this order: A703, A7 and the two on the A72 road. It should be borne in mind that these are percentages of a very low total volume and therefore not too much emphasis should be placed on their relationship.

575. The trip purpose investigation of vehicular journeys disclosed that a very low percentage of the work journeys were made in vehicles, implying that many of the Borderers walk to work (50% of the employees questioned did walk to work). The investigation also disclosed that at the 5-6 p.m. peak hour there were more Recreation trips than Work trips. The mapping of the trip purposes showed a centre of gravity at Galashiels for the Work and Business Journeys and a centre further to the east for the Recreation Journeys.

576. The Questionnaire forms produced answers from 16,800 employees, of whom 41% were women. This proportion is higher than the

Diagram V. (d) NUMBERS OF CARS OWNED BY HOUSEHOLD

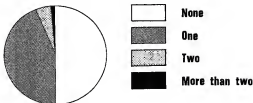


Diagram V. (e) MODE OF TRAVEL TO WORK

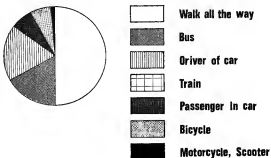
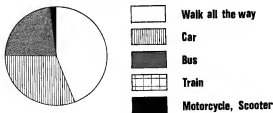
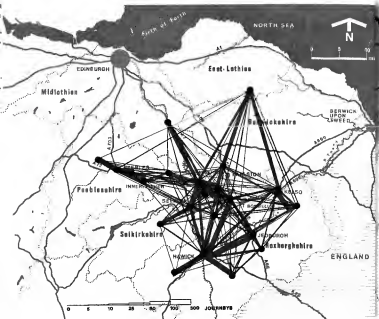


Diagram V. (f) MODE OF SHOPPING JOURNEY

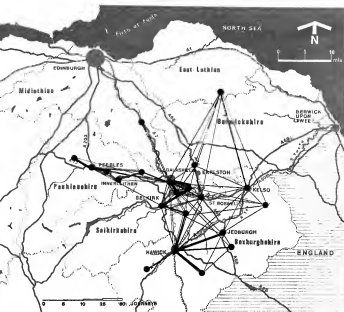




Map 10 (g) QUESTIONNAIRE SURVEY INTERZONAL HOME TO WORK  
DESIRE LINES



Map 39 (h) QUESTIONNAIRE SURVEY INTERZONAL MARRIED, FEMALE  
HOME TO WORK DESIRE LINES



Map 20 (i) QUESTIONNAIRE SURVEY INTERZONAL HOME TO SHOPPING CENTRE DESIRE LINES

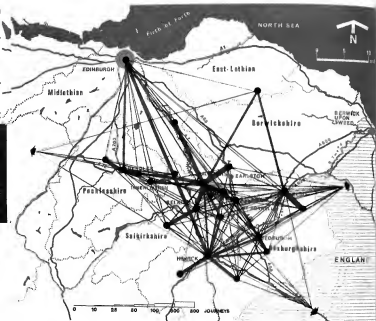


Table No. 18

12 Hour, 2 Way Journeys as determined by the Origin-Destination Interview Survey, April 1967

Zone Number	510	500	490	480	440, 430	410, 400, 400	390	360	330, 370	320, 400	310	300, 300	280	
North of Scotland	-	-	-	-	-	-	-	-	-	13	-	-	510	
060 (Glasgow)	-	-	-	-	-	-	-	-	-	-	-	-	500	
070 (Edinburgh)	-	4	-	-	-	-	-	-	-	6	-	-	490	
080 (Leamington and West Lothian)	-	-	4	-	-	2	-	-	-	24	6	-	440, 450	
090, 100 (Ayrshire, Kilmory, Dundee)	-	-	14	-	-	-	2	2	-	134	-	-	430	
110, 120, 130 (Newcastle, Berwick)	84	39	128	5	6	-	-	-	-	30	-	-	410, 430, 450	
140, 150, 160, 170 (rest of England)	224	28	410	11	2	-	-	-	-	80	-	-	390	
190*	2	-	24	-	2	2	2	-	-	34	-	-	380	
200	-	4	8	-	-	-	17	-	-	4	-	-	350, 370	
210	-	2	8	-	-	-	2	2	-	240	-	2	320, 400	
220, 230, 240	-	4	8	10	12	4	32	6	2	-	-	-	310	
250	56	80	620	76	10	12	24	475	108	4	48	-	300, 380	
240, 250, 270	-	-	24	4	-	-	10	7	2	-	185	-	280	
280, 290	6	8	72	5	4	-	8	11	4	12	98	-	260, 290	
260	7	9	87	17	14	-	17	21	-	6	355	-	280	
300, 310	-	-	16	-	-	-	-	-	2	4	-	-	300, 380	
310	56	50	620	25	13	10	2	13	16	295	208	168	40	310
320, 400	2	4	16	2	12	4	6	22	-	4	8	8	-	320, 400
390, 370	-	2	14	4	-	-	10	2	-	-	18	-	-	350, 370
360	18	14	134	4	8	-	4	2	20	14	32	-	-	360
380	10	18	182	4	3	2	-	1	4	10	54	20	-	380
410, 430, 450	-	-	8	-	2	-	-	-	-	16	-	-	-	410, 430, 450
420	16	13	56	7	5	-	3	2	18	116	10	-	-	420
440, 430	-	14	22	7	8	-	2	3	8	8	14	-	-	440, 430
470	46	42	242	14	6	-	6	-	6	32	24	-	2	470
480	4	-	18	-	2	-	-	2	-	4	-	-	-	480
500	2	-	10	-	-	2	-	-	-	6	4	-	-	500
510	59	7	122	16	2	-	2	2	6	18	6	-	-	510
Zone Number	North 060 070 080 090 100 110, 120, 130, 140, 150, 160, 170 190 200 210 220, 230, 240 250 260, 270 280 290													

\* See Map 300a for Zone Identification and Map 300b for the 12 Hour 2 Way Origin-Destination Diagram.

\* Zones 110, 440, 220 had no journey.

Table No. 16

5-4 pm Peak Hour Journeys as determined by the Origin-Destination Interview Survey, April 1967

Zone Number	510	500	490	470	440, 450	420	410, 430, 480	390	360	350, 370	320, 340	310	300, 380	280	
North of Scotland	-	-	-	-	-	-	-	-	-	-	2	-	-	-	510
060 (Glasgow)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	500
070 (Edinburgh)	-	-	-	-	-	-	-	-	-	-	6	-	-	-	490
080 (Linarkshire, and West Lothian)	-	-	1	-	-	-	-	-	-	6	-	-	-	-	470
090, 100 (Ayrshire, Kirkcud., Dumfr.)	-	-	-	-	-	-	-	-	-	26	-	-	-	-	440, 450
110, 120, 130 (Newcastle, Berwick)	8	9	8	-	2	-	-	-	-	2	-	-	-	-	420
140, 150, 160, 170 (rest of England)	32	2	64	2	-	-	-	-	-	14	-	-	-	-	410, 430, 480
190*	-	-	3	-	-	-	-	-	-	10	-	-	-	-	390
200	6	-	2	-	-	-	-	2	-	2	-	-	-	-	360
210	-	-	-	-	-	-	-	-	-	-	56	1	-	-	350, 370
220, 330, 340	-	1	2	6	2	-	8	2	-	-	-	-	-	-	320, 400
230	-	14	64	8	2	-	-	57	40	2	-	-	-	-	310
240, 250, 270	-	-	4	-	-	-	-	-	1	-	-	20	-	-	300, 380
260, 290	2	2	8	-	-	-	-	5	4	2	2	6	-	-	280
280	2	1	38	2	6	-	-	2	2	-	-	44	-	-	260, 290
300, 380	-	-	2	-	-	-	-	-	-	-	-	-	-	-	240, 250, 270
310	6	6	72	4	1	2	2	1	2	56	30	12	-	6	300, 380
320, 400	-	-	2	-	-	2	2	3	-	-	-	-	-	2	310
350, 370	-	1	2	-	-	-	-	-	-	-	-	-	-	-	320, 400
360	-	1	30	-	-	-	-	-	-	-	4	-	-	-	350, 370
390	1	2	10	-	-	-	-	-	-	-	8	-	-	2	360
410, 430, 480	-	-	-	-	2	-	-	-	-	-	2	-	-	-	390
420	-	2	2	2	-	-	-	1	-	4	24	2	-	-	410, 430, 480
440, 450	-	-	2	1	1	-	-	-	-	-	4	-	-	-	420
470	4	7	14	2	1	-	-	-	-	-	2	-	-	2	440, 450
490	-	-	4	-	-	-	-	-	-	-	2	-	-	-	470
500	-	-	-	-	-	-	-	-	-	-	2	-	-	-	490
510	2	-	8	2	-	-	-	-	-	2	-	-	-	-	500
Zone Number	North of Scotland	060	070	090	090, 100	110, 120, 130	140, 150, 160, 170	190	200	210	220, 330, 340	230	240, 250, 270	260, 290	

† See Map 20(a) for Zone Identification and Map 20(b) for Peak Hour Desire Line Diagram.

\* Zones 190, 460 and 520 had no journeys.



Table No. 17

Work and Business Journey Desire Lines as determined by the Origin-Destination Interview Survey, April 1967†

Zone Number	510	500	490	470	440, 450	420	410, 430, 480	390	360	350, 370	320, 340	310	300, 380	280
North of Scotland	-	-	-	-	-	-	-	-	-	-	-	-	-	510
060 (Glasgow)	-	-	-	-	-	-	-	-	-	-	-	-	-	500
070 (Edinburgh)	-	-	-	-	-	-	-	-	-	-	-	-	-	490
080 (Lanarkshire, and West Lothian)	-	-	3	-	-	-	-	-	-	14	6	-	-	470
090, 100 (Ayrshire, Kirkcud., Dumfr.)	-	-	3	-	-	-	-	2	-	-	84	-	-	440, 450
110, 120, 130 (Newcastle, Berwick)	34	26	72	2	2	-	-	-	-	-	26	-	-	420
140, 150, 160, 170 (rest of England)	74	12	150	6	-	-	-	-	-	-	64	-	-	400, 430, 480
190*	2	-	16	-	-	2	-	-	-	-	22	-	-	390
200	-	4	4	-	-	-	-	7	-	-	2	-	-	360
210	-	2	4	-	-	-	-	-	2	-	-	92	-	350, 370
220, 330, 340	-	2	4	8	2	2	10	2	-	-	-	-	-	320, 400
230	18	58	426	40	6	4	8	240	-	-	22	-	-	310
240, 250, 270	-	-	12	2	-	-	-	9	5	-	-	114	-	300, 380
260, 290	4	2	44	3	2	-	-	7	7	2	6	56	-	280
280	4	7	65	8	2	-	-	15	11	2	6	246	-	250, 290
300, 380	-	-	8	-	-	-	-	-	-	-	2	-	-	280
310	38	22	392	14	4	10	-	30	6	218	66	112	-	300, 380
320, 400	-	2	16	-	4	-	2	3	-	2	4	4	-	310
350, 370	-	2	8	2	-	-	-	8	2	-	-	12	-	320, 400
360	4	4	104	2	2	-	-	3	-	12	4	18	-	350, 370
390	4	10	68	3	3	2	-	-	4	10	36	16	-	360
410, 430, 480	-	-	4	-	2	-	-	-	-	-	12	-	-	390
420	2	7	68	7	2	-	-	1	-	12	80	6	-	410, 430, 480
440, 450	-	8	6	3	2	-	-	-	3	4	8	6	-	420
470	24	19	140	9	2	-	-	-	-	4	34	8	-	440, 450
490	-	-	8	-	-	-	-	-	-	-	4	-	-	470
500	-	-	2	-	-	-	-	-	-	6	4	-	-	490
510	16	6	56	10	2	-	-	-	2	2	8	4	-	500
510	16	6	56	10	2	-	-	-	2	2	8	4	-	510
Zone Number	North of Scotland	060	070	080	090, 100	110, 120, 130	140, 150, 160, 170	190	200	210	220, 330, 340	230	240, 250	260, 290

† See Map 28(a) for Zone Identification and Map 28(b) for the Work Journey Desire Line Diagram.

\* Zones 180, 460 and 520 had no journeys.

Table No. 18

Recreation Journey Desire Lines as determined by the Origin-Destination Interview Survey, April 1967†

Zone Number	510	500	490	470	440, 450	420	410, 430, 480	390	360	350, 370	320, 340	310	300, 380	280	
North of Scotland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	510
060 (Glasgow)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	500
070 (Edinburgh)	-	2	-	-	-	-	-	-	-	-	-	-	-	-	490
080 (Leamington, and West Lothian)	-	-	-	-	-	2	-	-	-	-	-	-	-	-	470
090, 100 (Ayrshire, Kirkcaldy, Dumfries)	-	-	10	-	-	-	-	-	2	-	6	-	-	-	440, 450
110, 120, 130 (Newcastle and Berwick)	32	13	38	3	3	-	-	-	-	-	2	-	-	-	410, 430, 480
140, 150, 160, 170 (rest of England)	32	12	218	3	-	-	-	-	-	-	8	-	-	-	390
190*	-	-	2	-	-	-	2	-	-	-	4	-	-	-	360
200	-	-	2	-	-	-	-	1	-	-	-	-	-	-	350, 370
210	-	-	2	-	-	-	2	-	-	-	-	14	-	-	320, 400
220, 330, 340	-	2	-	-	6	2	16	2	2	-	-	-	-	-	310
230	32	22	108	24	-	2	10	84	28	2	16	-	-	-	300, 380
240, 250, 270	-	-	12	2	-	-	-	-	2	-	-	12	-	-	280
260, 290	2	2	8	2	2	-	-	1	2	2	6	16	-	-	260, 290
280	1	-	12	4	2	-	-	1	4	-	-	32	-	-	280
300, 380	-	-	4	-	-	-	-	-	-	-	2	-	-	-	300, 380
310	12	11	76	4	3	-	2	2	6	26	32	12	-	30	310
320, 400	2	-	2	2	-	2	-	-	-	-	4	-	-	-	320, 400
350, 370	-	-	22	2	-	-	-	2	-	-	-	-	-	-	350, 370
360	12	6	24	2	4	-	6	1	2	2	6	10	-	-	360
390	4	6	20	1	-	-	-	2	-	6	8	2	-	4	390
410, 430, 480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	410, 430, 480
420	6	4	10	-	8	-	2	2	2	2	10	2	-	-	420
440, 450	-	5	6	-	1	-	-	-	-	-	-	6	-	-	440, 450
470	10	9	38	-	4	-	-	2	-	-	10	4	-	2	470
490	4	-	8	-	-	-	-	-	-	-	-	-	-	-	490
500	2	-	-	-	-	-	-	-	-	-	-	-	-	-	500
510	8	1	34	2	-	-	-	-	-	-	8	-	-	-	510
Zone Number	North 060 070 080 090, 110, 140, 190 200 210 330, 230 340, 260, 250 290 of Scotland 100 120, 130, 150, 160, 170														

† See Map 20(a) for Zone Identification and Map 20(b) for the Recreation Desire Line Diagram.

\* Zones 180, 460 and 520 had no journeys.

Table 19

Work Journey Desire Lines as determined by the Origin-Destination Questionnaire Survey, April 1967

Zone Number	510	500, 520	490	470	460	450	440	420	410, 430, 480	390	360	
	521*	59	19	167	2	22	9	40	1	11	5	510
190, 200	150*	118*	13	41	2	1	20	16	-	2	-	500, 520
210	-	113*	115*	210	-	-	9	-	4	1	-	490
220, 330, 340	2	-	112*	4405*	120	36	37	107	44	10	68	470
230	138	-	1	935*	11*	1	-	-	-	-	2	460
240, 250, 270	1	-	-	29	28*	723*	345	41	3	4	3	450
260, 290	-	6	-	33	1	161*	465*	23	13	4	-	440
280	-	-	-	42	82	49	220*	218*	45	38	20	420
300, 380	-	1	5	-	-	5	-	27*	34*	7	17	410, 430, 480
310	3	94	45	14	3	60	18	121	2920*	61*	20	390
320, 400	-	3	67	12	-	1	1	16	153	307*	842*	360
350, 370	-	-	-	-	-	-	-	2	10	2	93*	350, 370
360	-	1	3	3	-	3	3	9	224	19	76	360
390	-	-	14	2	1	-	1	91	174	21	2	390
410, 430, 480	-	-	1	-	-	2	2	1	17	2	1	410, 430, 480
420	1	3	13	-	-	4	-	21	121	45	2	420
440	-	-	25	-	-	-	-	1	3	19	2	440
450	1	1	94	-	1	-	-	3	6	7	-	450
460	-	-	-	-	-	-	-	-	-	-	2	460
470	-	4	7	-	-	1	2	1	39	9	21	470
490	-	-	-	-	-	1	-	-	2	-	-	490
500, 520	-	1	-	-	-	-	-	-	-	-	-	500, 520
510	-	1	-	-	-	-	-	1	23	3	-	510
ZONE NUMBER	190, 200	210	220, 330, 340	230	240, 250, 270	260, 290	280	300, 380	310	320, 400	350, 370	

† See Map 30(f) for Zone Identification and Map 30(g) for the Work Journey Desire Line Diagram.

\* These work journeys are made within the survey zone itself.

Table No. 20

Married Female Work Journey Desire Lines as determined by the Origin-Destination Questionnaire Survey, April 1967†

Zone Number	510	500, 520	490	470	460	450	440	420	410, 430, 480	390	360	
	133*	5	-	30	-	2	1	-	-	-	1	510
190, 200	18*	3*	1	13	-	-	-	-	-	-	-	500, 520
210	-	8*	14*	31	-	-	-	-	-	-	-	490
220, 330, 340	-	-	15*	1159*	18	7	10	7	15	-	5	470
230	40	-	1	232*	1*	-	-	-	-	-	-	460
240, 250, 270	-	-	-	8	2*	132*	28	1	-	-	-	450
260, 290	-	-	-	8	-	47*	25*	-	3	-	-	440
280	-	-	-	22	3	9	53*	30*	5	4	2	420
300, 380	-	-	1	-	-	-	-	5*	3*	-	2	410, 430, 480
310	1	9	5	1	-	10	1	35	660*	12*	4	390
320, 400	-	-	8	-	-	-	-	5	28	33*	214*	360
350, 370	-	-	-	-	-	-	-	1	1	-	8*	350, 370
360	-	-	-	1	-	-	-	1	33	3	17	360
390	-	-	-	1	-	-	-	21	20	2	-	390
410, 430, 480	-	-	-	-	-	-	-	-	3	-	-	410, 430, 480
420	-	-	1	-	-	-	-	4	14	2	-	420
440	-	-	1	-	-	-	-	1	1	-	-	440
450	-	-	12	-	-	-	-	-	1	1	-	450
460	-	-	-	-	-	-	-	-	-	-	-	460
470	-	-	-	-	-	-	-	-	5	3	5	470
490	-	-	-	-	-	-	-	-	-	-	-	490
500, 520	-	-	-	-	-	-	-	-	3	-	-	500, 520
510	-	-	-	-	-	-	-	-	25	-	-	510
Zone Number	190, 200	210	220, 330, 340	230	240, 250, 270	260, 290	280	300, 380	310	320, 400	350, 370	

† See Map 20(f) for Zone Identification and Map 20(g) for the Married Female Work Journey Desire Line Diagram.

\* These work journeys are made within the survey zone itself.

Table No. 21  
Home to Shopping Centre Journeys as determined by the Origin-Destination Questionnaire Survey, April 1967<sup>†</sup>

	Hawick	Gale-shield	Kilno	Forbes	Selkirk	Jed-borough	Edin-borough	Inver-bellon	Melrose	St. Bos-wells Area	Berwick	Can-side	Glasgow	Newcastle	None of these
190, 200	1	1	"	164	"	"	(51)*	1	1	"	(17)*	(17)*	(47)*	(11)*	16
210	111	"	"	"	"	"	35	"	"	"	"	"	1	1	10
220, 230, 240	57	"	75	"	"	"	18	"	"	"	49	"	1	"	33
250	30	"	"	767*	1	"	66	3	"	1	"	1	6	"	3
260, 270, 280	"	"	1	55	"	"	2	17	"	"	"	"	"	"	1
290	140	"	"	39	"	"	6	33	"	"	"	"	"	"	1
300, 310	58	"	"	24	"	"	9	160*	"	"	"	"	"	"	"
320	111	"	"	1	8	"	"	"	26	"	"	"	"	1	"
330, 340	3058*	5	"	1	9	2	47	1	8	1	4	2	4	"	"
350, 360	323	"	17	"	"	"	"	1	19	10	1	"	"	"	10
370	38	23	"	14	114	"	1	1	"	"	3	1	"	"	"
380	215	19	"	1	790*	"	7	1	"	"	"	2	"	"	"
390	153	4	"	"	"	"	1	"	119*	"	"	"	"	"	1
400, 410, 420, 430, 440	56	55	2	"	15	"	"	"	"	16	1	"	"	"	"
450	188	19	5	"	"	1	6	"	11	142*	"	"	"	"	"
460	15	15	591	"	1	49	1	"	"	8	13	"	"	"	3
470	6	"	698*	"	"	3	9	"	1	"	16	1	"	"	1
480	1	118	"	"	"	1	2	"	"	"	"	"	"	"	"
490	42	4127*	4	"	8	10	125	2	2	1	4	"	2	4	5
500	3	257	3	"	"	1	"	"	1	1	"	30	1	1	1
510	10	57	2	"	"	122	2	"	1	2	"	"	"	"	"
520	18	81	8	"	1	566*	17	2	"	1	3	"	"	1	1
Total	4634	4773	1406	1066	955	755	546	222	196	184	114	65	18	9	85

<sup>†</sup> See Map 207 for Zone Identification and Map 208 for the Home to Shopping Centre Journey Time Diagram.

\* These shopping journeys are made within the inner zone itself.

Table 22  
Estimated Normal Traffic Flows in 1980.

Section or New Road	Traffic Flow August 1965	Estimated Traffic Flow August 1980	Deduction for seasonal component 1980	INCREASE for new population 1980	Estimated Normal Traffic Flow, May 1980
A66 Carfraemill to St. Boswells . . .	4,900	10,500	3,700	9,400	(1) 16,200
St. Boswells to Jedburgh . . .	5,700	12,300	4,300	2,900	10,900
Jedburgh to Carter Bar . . .	3,800	8,200	2,900	290	5,590
A7 Stow to Galashiels . . .	3,500	7,500	2,600	850	5,750
Galashiels to Selkirk . . .	4,100	8,800	3,100	1,850	7,550
Selkirk to Hawick . . .	3,000	6,500	2,300	2,700	6,900
A703 Fala Toll to Peebles . . .	2,740	5,900	2,100	250	4,050
A72 Peebles to Innerleithen . . .	3,595	8,400	2,900	600	6,100
Innerleithen to Peebles/Selkirk Border . . .	2,880	6,200	2,200	750	4,750
Peebles/Selkirk Border to Galashiels . . .	2,000	4,300	1,500	750	3,550
New Road					
Galashiels to Melrose . . .	—	5,800	2,000	8,900	12,700
Melrose Bypass . . .	—	11,600	4,000	7,700	15,300
Melrose to A66 . . .	—	11,600	4,000	7,700	15,300
A6091 Galashiels to Melrose . . .	5,400	11,600 (2) 5,800	2,000	1,700	5,500
A698 Hawick to Ascrum A66	2,200	4,700	1,600	700	3,800

Notes: All flows in passenger car units/16 hour day.

(1) This figure refers to length of road between St. Boswells and junction with New Road.

(2) The estimated Traffic Flow on A6091 in 1980 is assumed to be equally borne by A6091 and New Road, Galashiels to Melrose.

## Appendix 2: The Planning Process

579. A general method for the planning process was studied. The past, present and future stages for the commitment were analysed and a system was produced. This was demonstrated by two diagrams as follows:

### (1) Chronogram

This diagram consists of a time-scale network formulating all the major operations of the planning task. All studies undertaken by each of the four internal groups of the Unit were classified and co-ordinated. Subject and timing of interrelationships between the Unit and the department of Economics and Geography of Edinburgh University, the Scottish Development Department and Local Authorities were also established.

### (2) Critical Path Diagram

This diagram includes the previous time-scale information and classifies the studies by the Unit, to which a network analysis showing the sequential arrangement of constituent activities in the form of arrows, linked by nodes, is added. A chain of critical operations (i.e. the duration of which should not be extended) is established:

this involved twenty-four operations out of a total of fifty-three.

### Comments on Diagrams

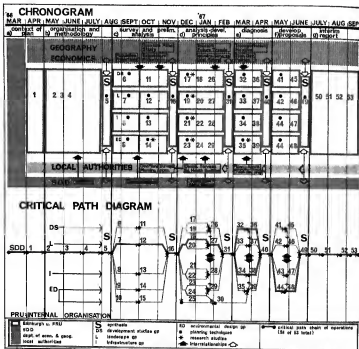
580. The Chronogram and Critical Path Diagram are general networks, mainly designed to fulfil two requirements:

- (a) To serve the Unit's needs for an overall programme of work for the Study, co-ordinating the necessary interrelationships between the four groups.
- (b) To serve public relations purposes, providing a general picture of the Unit's past, present and future stages of work for the commitment.

581. To attain these goals, necessary compromises had to be made. The past stages of the study (March–December 1966) were rationalised. The present and future stages (December 1966–September 1967) were the subject of deeper study and were directly affected by past studies and methodologies.

582. The final two diagrams establish a broad framework within which the work programme is subdivided into seven main phases, containing a rationalisation and co-ordination of the four respective group programmes.

DIAGRAM VI. CHRONOGRAM AND CRITICAL PATH





1. National and Regional Context
2. Background Information
3. Definition of the Problems
4. Analysis of Development Potentials
5. Pilot Study—Alternative Development Models (8)
6. Regional Development Theory—Policies
7. Collection of Physical Data (Rural)
8. Collection of Road/Traffic Data—Services Data
9. Collection of Physical Data (Urban)
10. Monocentric Model
11. Regional Development Studies
12. General Analysis of Physical Background
13. General Analysis of Road Networks and Traffic Trends—Services Networks
14. General Analysis of the Existing Urban Environment—Study of an Optimum Urban Structure
15. Linear Development
16. Alternative Development Models (6)
17. Alternative Development Models (Macro)
18. Regional Development Studies (as related to Models)
19. Analysis of Physical Background (Specific Priorities)
20. Human Attitudes towards Tourism and Recreation—Evaluation of the Physical Environment
21. Communication Models—Services Networks
22. Study of Road Traffic and the Urban/Rural Environment
23. Analysis of the Existing Urban Environment
24. Study of an Optimum Urban Structure
25. Linear Development
26. Planning Implications
27. Planning Implications
28. Planning Implications
29. Planning Implications
30. Residential Development—Industrialised Systems—Linear Development
31. Preliminary Appreciation—Terms of Reference for Micro Development Models—Growth Potential—Urban Threshold Studies
32. Alternative Development Models (Micro)
33. Formulation of Standards
34. Analysis of Existing Road/Traffic Trends—Services Networks
35. Growth Potential Studies
36. Development Costs
37. Growth Potential Studies
38. Growth Potential Studies
39. Urban Thresholds—Study of an Optimum Urban Structure
40. Assessment—Selection of Development Model
41. Long Term Development Proposals
42. Development Proposals for Rural Areas
43. Development Proposals for Communications and Services
44. Development Proposals for Urban Areas—Short Term
45. Programming of Long Term Development
46. Programming
47. Programming
48. Programming of Short Term Development—Methods of Implementation
49. Draft Advisory Development Plan—1980—Long-Term Development Proposals
50. Refining—Working up
51. Cross-Checking
52. Co-ordination
53. Writing—Editing—Interim Report



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# The Central Borders

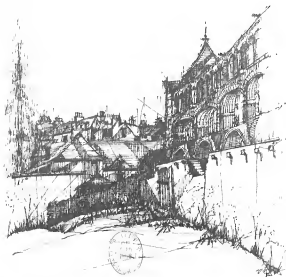
VOLUME ONE: PLAN AND PHYSICAL STUDY

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EDINBURGH

HER MAJESTY'S STATIONERY OFFICE

1968



Scottish Development Department

THE CENTRAL BORDERS

A PLAN FOR EXPANSION

Volume One

CORRECTION

Page 7 - second column, last line -  
Amend page reference "(see page 9)"  
to read "(see page 69)"

EDINBURGH: HER MAJESTY'S STATIONERY OFFICE

April 1968



# The Central Borders

VOLUME ONE: PLAN AND PHYSICAL STUDY

*prepared for*

THE SCOTTISH DEVELOPMENT DEPARTMENT

*by the Consultants in the University of Edinburgh*

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Economic Consultant: PROFESSOR N. WOLFE

The Consultant Director was Professor Percy Johnson-Marshall



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## ***Preface***

The Central Borders Plan for Expansion has been carried out in the Faculty of Social Sciences at the University of Edinburgh. The proposal to prepare a plan was first stated in the White Paper "The Scottish Economy 1965-70" paragraph 232 which reads "It is accordingly proposed to appoint a Planning Consultant forthwith to identify the main possible lines of development and their location. The Consultant will be asked to act in consultation with the local authorities and the Scottish Development Department and submit his report in 18 months".

The plan and physical study appears in Volume One and the economic study appears in Volume Two.

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